

Picatinny Arsenal

REAL PROPERTY MASTER PLAN PROGRAMMATIC ENVIRONMENTAL ASSESSMENT

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EXECUTIVE SUMMARY

ES.1 INTRODUCTION

This Programmatic Environmental Assessment (PEA) evaluates potential environmental effects resulting from implementing the Real Property Master Plan (RPMP) for Picatinny Arsenal. Army installations are required to prepare RPMPs (US Army, 2005). These plans are developed to: establish a vision and future direction for efficiently managing real property to support the current mission, transformation, and management processes; provide soldiers, their families, civilians, retirees, and other users of an installation with the highest quality facilities attainable, and establish a framework for installation management to review allocation of limited resources that affect, or are affected by, the use of real property assets (US Army, 2005).

This document does not address cumulative impacts on soil, water, groundwater, or sediments from outdoor testing activities. Those impacts will be addressed under the Army's active range program procedures.

Future documentation for actions required by the National Environmental Policy Act (NEPA) may be tiered from this PEA, thereby eliminating duplicate discussions that can be referenced from this document. This subsequent documentation may take the form of a Record of Environmental Consideration or higher level documentation should more analysis be required for the action. The PEA does not relieve the burden from proponents to satisfy NEPA requirements for actions and projects not sufficiently addressed in this document.

A RPMP consists of several component plans that focus on specific elements of the installation's planning process: Short Range Component (SRC), Long Range Component (LRC) and Capital Investment Strategy (CIS).

The SRC for Picatinny is an accompaniment to the Army six-year budget cycle that establishes planning strategies for stationing, equipment distribution, and training. The six-year budget year consists of the current year and five future years. The SRC provides an overview of specific maintenance, repair, and new construction projects in the six-year budget cycle. The SRC ensures that repair, maintenance, and construction projects have been thoroughly evaluated and coordinated prior to funding. The SRC for Picatinny Arsenal will include construction actions to support the Base Realignment and Closure (BRAC), increase in operations of open detonation, redevelopment of 100,000 square feet (sf) of existing facilities, and the 20-acre development associated with the Enhanced Use Lease (EUL) initiative. The 20-acre EUL effort is tentative and future implementation will be based on market conditions.

The primary purpose of the LRC is to develop the future land use development plan for Picatinny. The LRC is a written record of operational and site conditions based on information gathered from previously prepared plans and documents, on-site surveys, and interviews with Picatinny leadership and staff. The LRC provides a description and assessment of physical and environmental conditions at Picatinny, including an analysis of Picatinny's capacity to support assigned missions. In addition, the LRC includes a recommended land use plan and establishes a foundation of data and information to assist in the assessment of environmental impacts.

The CIS component of Picatinny's RPMP serves as the link between the installation's short- and long-range plans and the Army's Planning Programming Budgeting and Execution System. It is based on Army

goals and the planning and programming guidance provided by the US Army Installation Management Command (IMCOM), and includes summaries of the desired sequencing of maintenance, repair, and new construction projects.

With the expanded authority of Title 10 USC § 2667, each of the Military Services have the authority and incentive to obtain a broad range of financial and in-kind considerations for leasing available, non-excess land under the control of DoD. The purpose of an EUL is to effectively and efficiently use an installation's real property assets as a means to enhance mission capability while concurrently reducing base operation costs. The EUL is to maximize the utility and value of available non-excess real property and allow installations to leverage the private sector's expertise and financial resources to build and/or redevelop existing land, buildings and other real estate assets. The Picatinny Arsenal EUL program consists of three phases. Phase I is the construction approximately 100,000 sf of office/administrative space that was partially built in the downtown area, known as the 350-area. Phase II involves the potential development on a 20-acre tract adjacent to Parker Road near the installation's front gate. Phase III is development of approximately 100 acres also adjacent to Parker Road. The build-out of the latter two stages of the EUL will be implemented in the future, based on market demand.

ES.2 PROPOSED ACTION

The proposed action (Alternative 3) is to implement the Picatinny Arsenal RPMP and all elements of the component plans, to include the CIS, SRC, and LRC. Key elements included in those plans are the implementation of Phase II and Phase III of the installation's EUL as well as expanded operations of open burning and open detonations of excess propellants, explosives, and pyrotechnics associated with the installation's research mission.

ES.3 ALTERNATIVES

ES.3.1 Alternative 1, No Action Alternative.

Under the No Action Alternative, ongoing operations would continue at the current level. Maintenance, repair, and operation of existing operational and support facilities would continue as currently conducted. Existing research, development, administrative, personnel support, and other support mission activities would continue at their current intensities.

This alternative defines existing conditions at Picatinny as of January 2007 and the effects that would take place if the proposed action is not implemented. This alternative has been included in the analysis to provide the "environmental baseline" to be used as a benchmark for comparing the beneficial and adverse impacts associated with the other alternatives. The No Action Alternative is mandated by law and regulation to be taken into consideration as part of the National Environmental Policy Act (NEPA) process (Title 40 CFR Part 1500-1508; Title 32 CFR Part 651).

ES 3.2 Alternative 2, Implement the Short Range Component (SRC) and Enhanced Use Lease (EUL).

Under this alternative, the installation will implement the SRC and Phase II of the EUL. Phase II of the EUL will be implemented based on market conditions. The list of projects planned for the time-frame of the SRC is provided in Table ES.1. The CIS and LRC would not be implemented under this alternative.

ES 3.3 Alternative 3, Implement the Picatinny Arsenal Real Property Master Plan, All Component Plans, and the Enhanced Use Lease (EUL).

Under this alternative, the installation will implement its RPMP to include all component plans (SRC, CIS and LRC); be prepared to implement Phase II and Phase III of the EUL based on market demand; and,

expand operations of open burning and open detonations of excess propellants, explosives, and pyrotechnics associated with the installation's research mission. This is the preferred alternative.

Table ES.1: Short Range Component Construction Program

FY	Program	Project Number	Project Title
2007	UMMCA*	52848	Dam Upgrades
2007	MCA**	48645P1	Emergency Services Center, Phase I
2007	MCA	65327	Armament Integration Facility
2007	EUL	N/A	Development of 350-area, (Phase I)
2008	BRAC	65425	Packaging, Handling, Storage, and Transportation Center
2008	BRAC	65426	Fuze Engineering Complex
2009	BRAC	65527	Guns and Weapons Tech Data Facility
2009	BRAC	65525	Guns and Weapons Systems Laboratory
2010	MCA	56918	Child Development/School Age Service Center
2012	MCA	51519	Ballistics Evaluation Center
2012	MCA	63054	Explosive Ordnance Disposal Technology Facility
2012	MCA	65051	Soft Recovery System Facility

Source: Directorate of Public Works, 2006.

*Urgent Minor Military Construction Army

**Military Construction Army

ES 4 ENVIRONMENTAL CONSEQUENCES

ES 4.1

A preliminary analysis determined that implementing the considered alternatives would have little to no effect on several valued environmental components (VECs). Those include:

- airspace,
- natural resources,
- threatened and endangered species,
- noise,
- socioeconomics and environmental justice,
- water resources,
- soil erosion, and
- energy.

Similarly, the same analysis determined that implementing the considered alternatives could have some effect on six other valued environmental components: cultural resources, wetlands, air quality, land use, hazardous waste and hazardous materials, and traffic and transportation. Table ES.2 (page ix), illustrates the anticipated environmental consequences of implementing each of the alternatives.

To determine the effects on air quality from sources emitting hazardous air pollutants (HAPs), Picatinny performs air modeling. For any new or modified source that emits HAPs, the operations are assessed for their impacts on ambient air quality. To date, the only pollutant showing an impact is lead. The air model assesses both long term (3-month average) and short-term (24-hour average) ambient air impacts. The facility baseline impact determined from the most recent cumulative air quality modeling shows no impact on the National Ambient Air Quality Standard (NAAQS) (long term standard), and anything that emits lead will have an impact on the short term state guideline concentration. THE USEPA has promulgated, in October 2008, a new NAAQS for lead which is one-tenth the current standard. Further analyses will be

necessary to determine health risks when the new regulations take effect in New Jersey. Regardless of the alternatives selected, as projects related to the master plan move forward, the air model should be reviewed and updated as more information becomes available.

ES 4.2

An analysis of the proposed alternatives determined there would be little to no effect on the environment by implementing the No Action Alternative. There would be some minor, negative consequences to land use from not being able to relocate some family housing that is adjacent to a portion of the installation's industrial operations.

ES 4.3

Potential consequences of Alternative 2, Implement the Short Range Component (SRC) and Enhanced Use Lease (EUL). Implementing this alternative would have no effect on other land use classifications on the installation and would not affect use of land adjacent to the installation. Implementing only the SRC would have a minor negative impact on land use on the installation resulting from not relocating several housing units currently located near some of the installation's industrial operations. Some construction actions are proposed on land where cultural and historical surveys have not been conducted. These sites should be surveyed for historic, archaeological, or cultural resources prior to beginning construction. The installation's population, when including BRAC and the Phase II EUL, is expected to reach 5,230, an increase of 1,290. This increase is expected to have little or no effect on level of service of the roadways on the installation. The increase in traffic from Picatinny Arsenal is expected to contribute to increased levels of traffic congestion on nearby Route 15, which is currently at level of service (LOS) rating E and F during morning and afternoon peak hours. A 2007 traffic study (CHA, 2007) determined that adjustments to traffic signal timing would mitigate the increased traffic volume with virtually no change in LOS.

Several projects in the SRC have been identified to involve construction within the transition area of known wetlands. The total area involved is approximately 1.83 acres (see Table 4.3). Implementation of these projects may require adjustments to the construction sites to avoid the transition areas or will likely require permits issued by New Jersey Department of Environmental Protection (NJDEP), and possibly mitigation actions determined by NJDEP.

Based on a preliminary review of the installation's cultural resources data layer on its Geographic Information System (GIS), the proposed site for several projects (listed below) in the SRC may be located on or adjacent to potential historic properties or cultural resources:

- Fuze Engineering Complex
- Dam Upgrade
- Packaging, Handling, Storage and Transportation Center
- Ballistics Evaluation Center
- Guns & Weapons Tech Data Facility
- Explosive Ordnance Disposal Technology Facility

Archaeological or cultural resource surveys of the proposed project sites will likely be required prior to the construction of these projects. In order to fulfill Section 106 of the National Historic Preservation Act (NHPA), all construction or other projects with ground-disturbing activities in previously uninvestigated areas must be subjected to the review process. The installation's Integrated Cultural Resource Management Plan (ICRMP) has additional information about cultural and archaeological resources. Proposed construction sites should be surveyed, in coordination with the State Historical Preservation Officer (SHPO), for potential historical or cultural resources before construction begins. If historic properties or cultural resources are identified, the installation should initiate consultation with the SHPO. The installation could mitigate any potential harm to historic properties or cultural resources by, in

coordination with the SHPO, recording and documenting the nature and characteristics of the resource. Depending on the nature of the resource, federally-recognized Native American Tribes may also be involved in these consultations.

Projects on the SRC meet the requirements of the existing land use plan and would have no detrimental effect on land adjoining the installation.

Phase II of the EUL is a proposed 150,000 sf research and administrative facility to be located near the installation's main gate. This phase will be implemented at a point in the future when market forces dictate the demand for the facility. This project may affect some wetlands, wetlands transition areas, and 300-foot riparian buffer areas. Potential incursions into a wetland or wetland transition area will require permits issued by the NJDEP, as well as possibly requiring mitigation actions.

As of June 16, 2008, all water systems on Picatinny Arsenal are Category 1, which requires a 300 ft riparian buffer on each side. Vegetative disturbances inside these riparian corridors in excess of the maximum allowable disturbances (Table C, NJAC 7:13-10.2) require mitigation to compensate for vegetative loss.

ES 4.4

Potential consequences of Alternative 3, Implement the Picatinny Arsenal Real Property Master Plan, all component plans, and the Enhanced Use Lease (EUL). This alternative involves implementing the installation's RPMP to include all component plans (SRC, CIS and LRC); be prepared to implement Phase II and Phase III of the EUL based on market demand; and, modify operations of open burning and open detonations of excess propellants, explosives, and pyrotechnics associated with the installation's research mission.

In addition to the SRC, this alternative involves fully implementing the LRC and CIS of the installation's master plan. The primary purpose of the LRC is to develop the future land use development plan for Picatinny. The LRC is a written record of operational and site conditions based on information gathered from previously prepared plans and documents, on-site surveys, and interviews with Picatinny leadership and staff. The LRC provides a description and assessment of physical and environmental conditions at Picatinny, including an analysis of Picatinny's capacity to support assigned missions. In addition, the report includes a recommended land use plan and establishes a foundation of data and information to assist in the assessment of environmental impacts. Based on the analysis in the LRC, the installation has the land and infrastructure to support the proposed construction program. This program will be required for Picatinny to continue to accomplish its mission for the Army.

Based on a preliminary review of the installation's cultural resources data layer on its GIS system, the proposed site for several projects in the SRC (Section ES 4.3) may be located on or adjacent to potential historic properties or cultural resources. Historic, archaeological and cultural resource surveys should be conducted at those sites before construction begins. Consultation, in accordance with Section 106 of the NHPA, should begin with the SHPO if the presence of historic or cultural resources is identified. Appropriate archaeological and/or cultural resource surveys should be conducted at proposed sites for construction projects identified in the installation's Long Range Component (LRC). If historic or cultural resources are identified, the installation should initiate consultation with the SHPO under Section 106 of the NHPA. The installation should mitigate any potential harm to historic properties or cultural resources by, in coordination with the SHPO, recording and documenting the nature and characteristics of the resource. Additional information about archaeological resources at Picatinny is provided in the installation's Integrated Cultural Resource Management Plan (ICRMP).

Changing the installation's open burning operations to a location further from the installation boundary, and reducing the annual burning from approximately 25,000 lb to 5,000 lb will likely have a positive effect on local air quality. This action could occur upon the NJDEP granting authority for Picatinny to operate its Explosive Waste Incinerator (EWI). The Army Research Development and Engineering Command

(ARDEC) requested from NJDEP authority to increase the annual limit on open detonation (OD) operations from 5,000 lbs to 10,000 lbs. The OD site is currently contaminated with the residue from many years of open detonation activities. The proposed increase of OD operations is subject to the approval of the NJDEP and issuance of a Subpart X permit under the provisions of regulations governing hazardous waste management.

Additionally, this alternative includes implementing Phase III of the EUL, which would be built after Phase II when market forces dictate the requirement. Due to the size (approximately 100 acres), and uncertain nature of the exact requirements of this action, a separate environmental analysis under NEPA would be conducted before this action is implemented.

Traffic volume is expected to increase over the next several years because of increased missions on Picatinny. This will cause a minor negative impact on traffic on the installation's road network. Increased traffic from Picatinny will contribute existing traffic congestion on NJ Route 15 that experiences Level of Service E during morning and peak hours. A study by Clough, Harbour and Associates (CHA, 2007) determined that modifications to the traffic signal timing would mitigate the impact from increased traffic volume from Picatinny. Level of service would not necessarily improve above existing levels (LOS E), but they would get no worse.

Fully implementing the Picatinny master plan will not affect land use on lands adjacent to the installation. Implementing the LRC will have a positive impact on land use in the installation's downtown area resulting from moving several single-family residences away from adjoining industrial land uses. The LRC calls for those housing units to be razed and replacement units built near other family housing on Navy Hill.

The final locations of the projects in the LRC have not been finalized, but their siting in relation to wetlands will be a factor. Projects will be sited to avoid or minimize potential effects on wetlands. Any project that affects a wetlands or transition area will require a permit from the New Jersey Department Environmental Protection (NJDEP) before construction can begin.

All work performed, including but not limited to: remediation work, construction work, land clearing, open burning, etc. will be performed in accordance with current OSHA regulations, current Army regulations - including-AR/PAM 385-10, EM 385-1-1, AMCR 385-100 and current Picatinny Arsenal site specific Safety regulations and policies.

Table ES.2, below, provides, in graphical format, a summary of the projected environmental effects from implementing each of the alternative courses of action discussed in this Programmatic Environmental Assessment.

Table ES.2 Alternative Analysis Matrix			
Valued Environmental Component	Alternative 1	Alternative 2	Alternative 3
Airspace	○	○	○
Energy	○	○	○
Noise	○	○	○
Threatened & Endangered Species	○	○	○
Socioeconomics	○	○	○
Environmental Justice	○	○	○
Soil Contamination	○	○	○
Erosion	○	○	○
Floodplains	○	○	○
Hazardous Material & Hazardous Waste	○	⊘	⊘
Natural Resources	○	○	○
Infrastructure	○	○	○
Water Resources	○	○	○
Wetlands	○	⊘	⊘
Land Use	⊘	⊘	+
Cultural Resources	○	⊘	⊘
Air Quality	○	⊘	⊘
Traffic and Transportation	○	⊘	⊘
Symbol Key: Significant Impact ⊗ Beneficial impact + Moderate Impact ⊘ Not Applicable N/A Minor or no Impact ○			

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SECTION 1

INTRODUCTION

1.1 SCOPE OF THIS PROGRAMMATIC ENVIRONMENTAL ASSESSMENT

This Programmatic Environmental Assessment (PEA) is designed to address potential environmental impacts resulting from the implementation of the Real Property Master Plan (RPMP) at Picatinny Arsenal (hereafter referred to as Picatinny). The document provides an evaluation tool to assist in the assessment of future actions that are comparable to those projects and activities currently identified and evaluated in this document. This document also provides Picatinny planners with information that can be used to make environmentally sound training, project, and operational decisions during the earliest stages of the ongoing master planning process.

This document does not address cumulative impacts on soil, water, groundwater, or sediments from outdoor testing activities. Those impacts will be addressed under the Army's active range program procedures.

Future documentation for actions required by the National Environmental Policy Act (NEPA) may be tiered from this PEA, thereby eliminating duplicate discussions that can be referenced from this document. This subsequent documentation may take the form of a Record of Environmental Consideration or higher level documentation should more analysis be required for the action. The PEA does not relieve the burden from proponents to satisfy NEPA requirements for actions and projects not sufficiently addressed in this document.

1.2 REGULATORY AUTHORITY

This PEA has been prepared in compliance with the National Environmental Policy Act (NEPA), as implemented by the President's Council on Environmental Quality (CEQ) regulations (Title 40 Code of Federal Regulations (CFR) Part 1500-1508, *et. seq.*, Army Regulation (AR) 200-1 (US Army, 2007), and Environmental Protection and Enhancement, and Environmental Effects of US Army Actions (32 CFR Part 651).

1.2.1 National Environmental Policy Act

NEPA is the basic national charter for the protection of the environment. It requires federal agencies to use a systematic, interdisciplinary approach to ensure that the impacts of federal actions on the environment are considered during the decision-making process. The NEPA process is not intended to fulfill the specific requirements of other environmental statutes and regulations. However, the process is designed to provide the decision-maker with an overview of the major environmental resources to be affected, the interrelationship of these components, and potential conflicts.

Anticipating the need for evaluation of these broad actions, NEPA includes provisions for the development of programmatic documents and tiering. As referenced in CEQ regulations (40 CFR 1502.20), whenever a broad environmental assessment (EA) or environmental impact statement (EIS) has been prepared and a subsequent environmental document is prepared on an action included within the entire program (such as a site specific action), the subsequent environmental document need only summarize the issues that are specific to the subsequent action. In these cases, it is only necessary to incorporate by reference any pertinent issues that have already been covered by an approved initial document. This PEA meets the intent of NEPA by providing:

- A programmatic document that will be used by Picatinny to incorporate environmental concerns in day-to-day operations and future plan development, and
- A statement of existing conditions and typical impacts that can be used to support subsequent documents under the “tiering” provisions of NEPA.

1.2.2 US Army Regulations

Army Regulations (ARs) stipulate Policies, responsibilities, and procedures for integrating environmental considerations into Army planning and decision making. These regulations are summarized below.

- AR 200-1, Environmental Protection and Enhancement (US Army, 2005), describes Department of the Army responsibilities, policies, and procedures to preserve, protect, and restore the quality of the environment. The regulation incorporates a wide range of applicable statutory and regulatory requirements.
- 32 CFR Part 651 is designed to provide policy, responsibilities, and procedures for implementing NEPA and for integrating environmental considerations into Army planning and decision making. It establishes criteria for determining which of the five review categories a particular action falls into (exemption by law, emergencies, Categorical Exclusion, EA, and EIS), and thus, what type of environmental document should be prepared.

Based on this guidance, it was determined that the proposed action for Picatinny (as described in Section 2) should be addressed through the preparation of a PEA. Specifically, if the proposed action is not covered adequately in any existing EA or EIS, a separate NEPA analysis must be completed prior to the commitment of resources (*i.e.*, personnel, funding, or equipment) to the proposed action.

1.3 LOCATION AND HISTORY OF PICATINNY ARSENAL

1.3.1 Location

The site on which Picatinny is located was originally chosen by the War Department for its sheltered valley location, relative proximity to New York City, and the strategic protection offered by the New York Harbor fortifications. Picatinny is in Morris County, located in the north-central portion of New Jersey (Figure 1.1). Picatinny lies just west of the greater New York/New Jersey Metropolitan Area, 32 miles northwest of Newark and 42 miles west of New York City. Local boroughs in the immediate vicinity are Wharton (1 mile), Dover (3 miles), and Rockaway (5 miles). Interstates 80, 280, and 287 comprise the major travel thoroughfares in the area. New Jersey State Route 15 forms the southern boundary of Picatinny and provides access to its main gate. In the 10-year period ending 2000, Morris County population grew by 48,859 to a total of 470,212 (Morris County, 2008). Morris County’s population grew to 493,160 in 2006, an increase of 5.88 percent (Census Bureau, 2008).

1.3.2 History

Since its inception as a powder depot in the late 19th century, Picatinny has experienced many changes. The installation has transitioned from a strategic materials storage facility, to a major heavy ordnance manufacturing center supporting the nation’s efforts in two world wars, to a preeminent leader in the research, development, engineering, and production support of advanced weapons systems. As documented by the installation’s historian, Dr. Patrick J. Owens, Picatinny Arsenal has its origins as the Dover Powder Depot, established in September 1880. The installation name was soon changed to the Picatinny Powder Depot. The primary mission during these early years was the storage of powder propellant and explosives. Changes in mission focus and requirements had profound impacts on Picatinny and shaped its development over the years. Original construction proceeded at a gradual pace.

Facilities built during these early years included storage magazines, officer quarters, stables, and service building. In 1891 315 acres of the original tract was transferred to the Department of the Navy to build additional magazines. In 1902 Picatinny entered a new phase of construction. At the turn of the 20th century, military technology was advancing at a rapid rate. The United States was also increasing its presence around the globe and asserting its role in world affairs. Picatinny expanded to meet the challenges of the new century with numerous buildings added to store reserves of sodium nitrate, armor piercing projectiles and high explosives. A plant to fill armor-piercing shells was also constructed. In 1907, the name was changed to Picatinny Arsenal and the largest addition to the installation occurred with the construction of the smokeless powder manufacturing facility. Picatinny continued to expand in the years leading up to the United States entry into World War I. In the summer of 1917, Picatinny constructed 54 buildings, and miles of railroad tracks, roads, and supporting utility lines. Picatinny first became a research and development facility with the establishment of an experimental plant for artillery ammunition in 1919. Following the war, experimental plants were set up to manufacture modern munitions and components on a production scale. Picatinny was designated as a manufacturing arsenal

Figure 1.1 New Jersey and surrounding states



Source: State of New Jersey, 2008

in December 1920, Picatinny was designated a manufacturing arsenal, and in 1921 added a fuze research and development mission.

Picatinny was irrevocably changed on July 10, 1926 when a lightning strike set off a massive chain reaction explosion and fire that damaged or destroyed nearly every building on the property. Initial rebuilding of Picatinny began as soon as the debris had been removed. An aggressive reconstruction program began in 1929. During reconstruction, Picatinny was divided into three areas that separated

munitions manufacturing/ explosive handling, munitions storage, and administrative and other non-hazardous tasks.

Work on Picatinny would continue through the Great Depression, due in part to the efforts of federal relief agencies. During the 1930s, the Works Progress Administration executed hundreds of infrastructure improvement projects throughout the arsenal. These projects had a positive impact on Picatinny and would help the installation face the enormous challenges brought on by World War II.

Picatinny had grown into a major munitions production center with the advent of World War I. During the early stages of World War II, Picatinny Arsenal's munitions production was ramped up exponentially. This capability was of critical importance as it filled an immediate, dire need for munitions while the civilian industrial sector retooled to meet wartime demand. At the same time, Picatinny's research and development mission increased dramatically as scientists, engineers, and technicians worked to provide the nation's armed forces with the improved explosives, propellants, fuzes, and weapons systems needed on the battlefield.

Early in World War II, Picatinny acquired the land between the Cannon and Main gates, which included the village of Spicertown. Ultimately, the expanded installation would cover seven miles of Picatinny Valley and contain more than 1,100 buildings (Picatinny, 2008).

In the modern post-war era, research and development evolved into the primary mission assigned to Picatinny. The installation is no longer engaged in production-scale ordnance manufacture. As a leader in armament-related research, Picatinny has had a role in the development, testing, and fielding of major ordnance and weapons systems in the modern US Army's arsenal.

1.3.3 Population

The Arsenal's population, based on the 2006 Army Stationing Information System (ASIP), stood at 3,940 persons. The Picatinny's projected 2012 population is 3,963, which does not include population changes from BRAC. Projected population increases resulting from Phase I of the EUL, which involves construction of new facilities in the building 350-area of the installation, is estimated at 617. This estimate is based on the projected size of the buildings and the planning factor of 162 gross square feet (sf) per person. The projected population at Picatinny Arsenal by year 2010 from its mission growth, BRAC and the EUL is estimated to be 5,230.

1.4 PICATINNY ARSENAL MISSIONS AND OPERATIONS

In general, there are four broad missions executed at Picatinny. These are:

- **Life-cycle Acquisition Management**, performed by Program Executive Officers (PEOs) and Product Managers (PMs). The Army is the Department of Defense (DoD) single manager for conventional ammunition acquisition, including small- and medium-caliber ammunition, for all US Forces. The Army established the Office of the Program Executive Officer for Ammunition (PEO Ammo) as part of a larger effort to establish greater accountability and responsibility in the life-cycle management of DoD's ammunition programs.
- **Armament Research, Development and Engineering**, performed by US Army Armaments Research, Development and Engineering Command (ARDEC). ARDEC is the Army's principal researcher, developer, and sustainer of current and future armament and munitions systems. In this role, ARDEC is responsible for executing programs that are in one of the following phases of the acquisition process: basic research, applied research, concept demonstration, development, production, and deployment.

ARDEC's research, development and engineering programs are concentrated in technical areas that include smart munitions, indirect fire and direct fire Soldier weapons, mines and demolitions, gun propulsion, fuzing and lethal mechanisms, fire control, and munitions survivability. In addition to

its work on legacy systems, ARDEC supports development of new soldier weapons, the Future Combat System, and advanced weapons that exploit technologies such as high-power microwaves, high-energy lasers, and nano-technology.

- **Base Operations and Community Support**, performed by the US Army Installation Management Command through the US Army Garrison, Picatinny. Base operations encompass the actions necessary to support the missions of the installation's tenant organizations and the people involved in implementing those missions. Base operations include supporting building and maintaining the facilities, roads and grounds on the installation. Supporting the people includes housing for Soldiers and their families, as well as providing support activities for assigned federal employees.
- **Other missions** performed by other tenants, including Defense Contract Management Agency (DCMA); US Army Tank-Automotive and Armaments Command (TACOM); Defense Contract Audit Agency (DCAA); Company G, 2nd Battalion, 25th Marine Regiment; and New Jersey Army National Guard.

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SECTION 2

PURPOSE AND NEED FOR THE PROPOSED ACTION

2.1 PROPOSED ACTION

The proposed action is to implement the Picatinny RPMP, including its component plans (SRC, CIS and LRC), to implement an EUL, and increase open burning and open detonation actions at the installation.

This PEA evaluates a multi-faceted proposed action that includes implementation of Picatinny's RPMP in order to provide the facilities and infrastructure required to support both current and future mission activities. The three component plans that comprise Picatinny's RPMP are the SRC, the LRC, and the CIS. These component plans are discussed in more detail below. The RPMP includes real property impacts of the BRAC 2005 decision, as well as an EUL initiative.

2.1.1 Short Range Component

The SRC for Picatinny is an accompaniment to the Army six-year budget cycle that establishes planning strategies for stationing, equipment distribution, and training. The SRC provides an overview of specific maintenance, repair, and new construction projects in the six-year budget cycle. The SRC ensures that repair, maintenance, and construction projects have been thoroughly evaluated and coordinated prior to funding. The SRC component plan will include construction actions to support BRAC, increase in open burning and open detonation operations, the redevelopment of the 100,000 square feet (sf) of existing facilities and the 20-acre development associated with the EUL initiative. The 20-acre development near the installation's front gate is tentative, and will be implemented based on market conditions. The elements and projects included in the SRC are provided in Table 2.1. The proposed locations of these projects, as well as those in the LRC, are shown in Figures A.1A through A.1C.

Table 2.1: Short Range Program

<i>FY</i>	<i>Program</i>	<i>Project Number</i>	<i>Project Title</i>
2007	UMMCA	52848	Dam Upgrades
2007	MCA*	48645P1	Emergency Services Center, Phase I
2007	MCA	65327	Armament Integration Facility
2007	EUL	N/A	Development of 350-area, (Phase I)
2008	BRAC	65425	Packaging, Handling, Storage, and Transportation Center
2008	BRAC	65426	Fuze Engineering Complex
2009	BRAC	65527	Guns and Weapons Tech Data Facility
2009	BRAC	65525	Guns and Weapons Systems Laboratory
2010	MCA	56918	Child Development/School Age Service Center
2012	MCA	51519	Ballistics Evaluation Center
2012	MCA	63054	Explosive Ordnance Disposal Technology Facility
2012	MCA	65051	Soft Recovery System Facility

Source: Directorate of Public Works, 2006.

* MCA, Major Construction - Army

A key goal of Picatinny's SRC is to help attain the command vision by supporting the planning and programming of facilities needed to meet future requirements for high technology gun and ammunition research facilities. This includes those needed to support new missions being realigned to the installation because of BRAC 2005. Through its environmental analysis of each short range project, the SRC also supports preservation of Picatinny's natural environment in a manner consistent with effective research and development testing and evaluation, and adherence to environmental guidance and laws.

2.1.2 Long Range Component

The primary purpose of the LRC is to develop the future land use development plan for Picatinny. The LRC report also is a written record of operational and site conditions based on information gathered from previously prepared plans and documents, on-site surveys, and interviews with Picatinny leadership and staff.

The LRC provides a description and assessment of physical and environmental conditions at Picatinny, including an analysis of the Arsenal's capacity to support assigned missions. In addition, the report includes a recommended land use plan and establishes a foundation of data and information to assist in the assessment of environmental impacts. A listing of the proposed projects included in the LRC, to include BRAC projects are provided in Table A.2, Appendix A. The proposed locations of these projects, as well as those in the SRC, are shown in Figures A.1A through A.1C.

2.1.3 Capital Investment Strategy

The CIS component of Picatinny's RPMP serves as the link between the installation's short- and long-range plans and the Army's Planning Programming Budgeting and Execution System. It is based on Army goals and the IMCOM planning and programming guidance, and includes summaries of the desired sequencing of maintenance, repair, and new construction projects.

2.1.4 Enhanced Use Lease

With the expanded authority of Title 10 USC § 2667, each of the military services have the authority and incentive to obtain a broad range of financial and in-kind considerations for leasing available, non-excess land under the control of DoD. The changes to Section 2667 expand the purposes for which lease proceeds may be used, and augment the types of in-kind consideration which may be accepted for leases. These changes maximize the utility and value of installation real property and provide additional tools for managing the installation's assets to achieve business efficiencies. Specifically, installations can, among other things, enter into long-term leases, providing greater flexibility for facility uses and reuse; and receive cash or in-kind consideration for income on leased property. This cash, or in-kind consideration, can be used for alteration, repair, improvement of property or facilities, construction or acquisition of new facilities, lease of facilities, payment of utility services, or real property maintenance services (US Army, 2008).

The purpose of an EUL is to effectively and efficiently use an installation's real property assets as a means to enhance mission capability while concurrently reducing the costs of base operations. The EUL is to maximize the utility and value of available non-excess real property and allow installations to leverage the private sector's expertise and financial resources to build and/or redevelop existing land, buildings and other real estate assets. Enhanced Use Leases are an important incentive and useful tool for military installations to leverage real property assets and may create taxable leasehold interests and generate investment, jobs, and revenue in the local community. Leases may be entered into whenever the Secretary of the Army considers it advantageous to the United States, and under such terms that will promote the national defense or be in the public interest. The likely tenant(s) in this EUL are organizations that directly support Picatinny Arsenal's mission. Picatinny has a wide range of state of the art research

facilities and laboratories to support a growing customer base and growing mission. The capabilities within Picatinny are key drivers to encourage private industry, academia or research institutions to the installation. The EUL would be the cornerstone of the Picatinny Applied Research Campus (PARC) adjacent to Parker Road near the main gate. The EUL project would be a unique combination of science and field technology making it a logical choice for the PARC.

Picatinny's EUL Project consists of the redevelopment of four buildings (approximately 100,000 square feet (sf) of existing facility space) in the installation's downtown area and the leasing and development of approximately 120 acres adjacent to Parker Road near the main gate, which would serve as the PARC. The project will involve the leasing of these real property assets through a master agreement and series of long-term leases in accordance with Title 10 US Code (USC) Section 2667 over a 50-year term to InSitech Inc. The installation's EUL project will consist of three phases. Phase I of the EUL is the 100,000 sf office/administrative space built in the downtown area, known as the 350-area. Phase II involves the potential development on a 20-acre tract adjacent to Parker Road near the installation's front gate. Phase III is development of approximately 100 acres also adjacent to Parker Road. The build-out of the latter two stages of the EUL will be implemented based on market demand. The proposed location for the 20-acre and 100-acre EUL projects is designated as the Picatinny Applied Research EUL Campus in Figure A.1A (Appendix A).

2.2 PURPOSE FOR THE PROPOSED ACTION

The purpose of the proposed action is to implement the Picatinny Arsenal RPMP to support current and foreseeable mission requirements. Master planning for military installations is a continuous analytical process which embraces changes in existing conditions, technological advancements, and organizational modifications. It involves evaluation of factors affecting the current and future physical development of Picatinny. Each step or element of the planning process is directed toward the creation of a series of interrelated documents that together comprise an installation master plan. Army Regulation 210-20 outlines the real property master planning process and defines roles and responsibilities for the various levels of command (US Army, 2005).

As home to the ARDEC and numerous other operational units, Picatinny provides the land, equipment, and facilities necessary to meet mission-related requirements. In addition to providing the administration and support facilities needed, Picatinny also provides the research and development test areas necessary to ensure that the installation is fully capable of accomplishing assigned missions. Without adequate research and development test areas to develop and test munitions, Picatinny would not be ready to support the DOD's constantly evolving need for the world's newest and most improved armament.

2.3 NEED FOR THE PROPOSED ACTION

A comprehensive RPMP charts the long-term investment strategy for achieving the garrison commander's goals for providing excellent installation physical plant to support the mission of the US Army Garrison and the tenants of Picatinny. A RPMP provides a documented guide for the comprehensive and holistic plan for the systematic and orderly development of the installation's real property to support the installation's current and future missions. RPMP expresses a long-term commitment to provide high-quality, sustainable, enduring installations. It covers a 20-year planning horizon and provides the map to executing that commitment with the least impact on the installation and regional communities. Increasing open burning and open detonation operations is required to support the installation's growing mission to conduct research related to explosives and propellants.

The need for implementing the EUL program is to optimize the use of non-excess real property on the installation to support the mission of Picatinny. The lease, at fair market value rates (in accordance with Title 10, Section 2667(b)(4)), of real property on Picatinny will generate income, either cash or in-kind

services, that can be used for maintenance and improvements to government-owned facilities on the installation.

2.4 VALUED ENVIRONMENTAL COMPONENTS

This section lists the valued environmental components (VEC) that will be reviewed and discussed in this Programmatic Environmental Assessment. Discussion in Section 4 will focus on the existing conditions for each VEC and the potential environmental consequences of each alternative course of action.

- Airspace
- Cultural Resources
- Natural Resources
- Threatened and Endangered Species
- Noise
- Wetlands
- Topography/Soils
- Hazardous Materials and Hazardous Waste
- Air Quality
- Land Use
- Socioeconomics and Environmental Justice
- Water Resources
- Soil Erosion
- Energy
- Traffic and Transportation

SECTION 3

DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

3.1 INTRODUCTION

Picatinny Arsenal proposes to implement the RPMP in order to provide the facilities infrastructure required to support both current and future missions. The RPMP (Picatinny, 2007) was prepared to identify actions necessary to ensure that the infrastructure at Picatinny is capable of supporting mission goals and requirements. The RPMP provides a review of available assets, identifies the users of the research and development ranges, and determines requirements for those users. It establishes current requirements and utilization levels for available assets and provides short- and long-term project plans. The projects identified in the RPMP take into account Picatinny's unique mission, economic resources, environmental stewardship, and potential for productivity enhancements.

As required by federal and Army regulations governing NEPA (40 CFR Parts 1500-1508 and 32 CFR Part 651, respectively), the proponent of an action or project must identify and describe all reasonable alternatives to the proposed action or project. The alternatives should provide a basis to compare the proposed action to other potential methods of implementation.

This section defines the proposed action in more detail and describes the three alternatives being considered in this PEA. These alternatives are listed below and discussed in greater detail in Sections 3.2 to 3.4:

- No Action. This consists of not implementing the installation's Real Property Master Plan, and its supporting component plans, and not implementing the Enhanced Use Lease (EUL).
- Implement the Short Range Component (SRC) of the Real Property Master Plan and the EUL.
- Implement the full RPMP, and all its component plans, and implement the EUL. This is the preferred alternative.

3.2 ALTERNATIVE 1 – NO ACTION ALTERNATIVE

Under the No Action Alternative, ongoing operations would continue at the level they are currently conducted. Maintenance, repair, and operation of existing operational and support facilities would continue as currently conducted, and existing research, development, administrative, personnel support and other support mission activities would continue at their current intensities.

This alternative defines existing conditions at Picatinny as of January 2007 and the effects that would take place if the proposed action is not implemented. The alternative has been included in the analysis to provide the "environmental baseline" to be used as a benchmark for comparing the beneficial and adverse impacts associated with the other alternatives. The No Action Alternative is mandated by law and regulation to be taken into consideration as part of the NEPA process (Title 40 CFR Part 1500-1508; Title 32 CFR Part 651).

3.3 ALTERNATIVE 2 - IMPLEMENT THE SHORT RANGE COMPONENT AND ENHANCED USE LEASE.

Under Alternative 2, ongoing operations would continue at the level that they are currently conducted, and Picatinny Arsenal would implement the SRC plan of its comprehensive RPMP. The installation would also implement Phase II of its EUL program. Maintenance, repair, and operation of existing operational and support facilities would continue as currently conducted. The installation would increase open burning and open detonation operations to support the installation's growing explosives-related research mission.

3.4 ALTERNATIVE 3 – IMPLEMENT THE PICATINNY ARSENAL REAL PROPERTY MASTER PLAN AND ALL COMPONENT PLANS

Under Alternative 3, Picatinny would implement the RPMP and all component plans, including the SRC, LRC, and the CIS. The RPMP identifies those actions necessary to ensure the facilities and infrastructure needed for research and development and base operations and support are capable of supporting mission goals and requirements. The projects identified in the RPMP take into account Picatinny's assigned missions, economic resources, environmental stewardship, and potential for productivity enhancements. The component plans of the RPMP were discussed in Section 2.1.

SECTION 4

AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

4.1 INTRODUCTION

This PEA evaluates the potential environmental effects of implementing the proposed course of action. The PEA has considered several environmentally-related resource areas which, for purposes of evaluation, have been identified as program resources areas, and those areas eliminated from further consideration

4.2 RESOURCE AREAS ELIMINATED FROM FURTHER CONSIDERATION

Analysis of potential environmental effects associated with a PEA typically addresses numerous resource areas that may be affected by implementation of proposed actions. In the case of Picatinny Arsenal implementing its master plan, certain environmental resource areas that typically receive attention have been initially examined and determined not to warrant further analysis. These areas include airspace, land use, wetlands, cultural resources, soil erosion, threatened and endangered species, and environmental justice. Each of these subject areas are discussed briefly as follows:

4.2.1. Airspace

Picatinny Arsenal has no facilities for aircraft operations. There is no heliport and no future plans to build one. There are two regional airports in the vicinity of Picatinny. Morristown Municipal Airport is approximately 10 miles southeast of Picatinny, near the intersection of Route 287 and Route 24. Teterboro Airport is situated approximately 25 miles east of Picatinny in the boroughs of Teterboro, Moonachie, and Hasbrouck Heights in Bergen County, New Jersey. Both facilities are reliever airports that support general aviation and charter services only. Implementing the installation's Real Property Master Plan will not affect aircraft operations at the regional airports and have no effect on local airspace.

4.2.2 Energy.

Picatinny's former central steam plant (Building 506) was deactivated in 2006 following the successful decentralization of the natural gas-fired boiler plants. Currently, most buildings have their own gas-fired boilers to heat water and provide comfort heat in the winter. As a result of privatization, New Jersey Natural Gas owns, maintains, and operates the natural gas distribution system, which consists of approximately 12 miles of lines. Cooling is provided by self-contained units sized for each facility. Jersey Central Power and Light supplies electric power to Picatinny via two separate 34.5-kilovolt overhead transmission lines. Sussex Rural Electric Cooperative (SREC) owns, operates, and maintains the electrical distribution system, which has been completely replaced and upgraded. Power demand has decreased steadily over the past 10 years, and SREC has been able to meet the annual loads. The Directorate of Public Works (DPW) staff expects future decreases in energy consumption and cost because of increased energy efficiency. All new military construction (MILCON) projects in the Army will achieve a minimum of Silver level of the Leadership in Energy and Environmental Design (LEED®) for New Construction per the US Green Building Council (USGBC) rating system (Assistant Secretary of the

Army, 2006). Picatinny must comply with Executive Order 13423 as it relates to Sustainability. Implementing the Picatinny RPMP is likely to have little or no effect on the installation's energy demands.

4.2.3 Noise

Ballistics testing and open detonation create high levels of impulsive noise that preclude locating noise-sensitive development on adjacent property. A noise study prepared by the US Army Center for Health Promotion and Preventive Medicine (USACHPPM) assessed these noise levels and their compatibility with adjacent land uses (USACHPPM, 2007). Three different zones were used to categorize the relationship between noise and land use. Zone I impulsive levels below 62 DBC (C-weighted average day-night decibel levels) are compatible with noise-sensitive land uses such as housing, schools, and medical facilities. Zone II impulsive noise levels range between 62 and 70 DBC and are normally incompatible with noise-sensitive land uses. Zone III impulsive noise levels exceed 70 DBC and are generally incompatible with noise-sensitive areas. The study concluded that the noise levels resulting from Picatinny operations were compatible with adjacent land uses (US Army, 2007). A new environmental noise management plan (ENMP) was prepared by USACHPPM and finalized in November 2007. Current and projected actions on Picatinny Arsenal will have little or no effect on the residents or employees on Picatinny or on the residents of adjacent properties.

4.2.4 Threatened and Endangered Species

Picatinny supports a diversity of habitats and provides resources for a variety of plants, fish, and other wildlife species. The Integrated Natural Resource Management Plan (INRMP) provides detailed information on the fish and wildlife found at Picatinny (Picatinny, 2001). Various inventories have confirmed the occurrence of 315 vertebrate species including 208 bird species, 41 mammals, 19 reptiles, 21 amphibians, and 26 fish species (Picatinny, 2001). Picatinny's 4,000 acres of forests, combined with adjacent public natural areas provide more than 11,000 acres of contiguous wildlife habitat.

The two federally-listed species that are considered residents on Picatinny are the endangered Indiana bat (*Myotis sodalis*) and the threatened bog turtle (*Clemmys muhlenbergii*) (USAEC, 2006). The bog turtle is a federally-listed threatened reptile species that requires wetland habitats with open canopies; soft, muddy bottoms; and slow-moving water. The bog turtle was last seen at Picatinny in 1987 at the lower end of the eastern branch of the Green Pond shrub-swamp. This small area of potential habitat is located in a remote, undeveloped area of the installation. The Endangered Species Management Plan (ESMP) for the bog turtle, which provides for passive management practices to protect the potential habitat, has been approved by the US Fish and Wildlife Service (USFWS) and New Jersey Division of Fish and Wildlife (NJDFW).

The ESMP for the Indiana bat (Picatinny, 2001) outlines a number of measures to protect the species' potential habitat: Tree trimming and cutting must be completed between November 15th and April 1st while the bats are in hibernation. Any construction (or other tree clearing) project located within 0.75-miles of a previous Indiana bat sighting (Zone of Concern) must go through an informal consultation with the USFWS. The plan also requires conservation of riparian corridors on each side of all stream channels. Adherence to the ESMP will ensure that actions associated with the RPMP do not affect the threatened and endangered species on Picatinny Arsenal.

4.2.5 Socioeconomics

Picatinny Arsenal is located in Morris County within the Newark Primary Metropolitan Statistical Area (PMSA), which is considered the socioeconomic region of influence (ROI) for the installation. The ROI encompasses a diverse geographic area with disparate social and economic conditions. The Newark PMSA is comprised of the following five counties: Essex, Morris, Sussex, Union, and Warren. Morris County is situated geographically near the midpoint of the Newark PMSA, with the heavily urbanized

counties (Essex and Union) located to the east and the more rural counties (Sussex and Warren) to the west. The City of Newark, which is the largest city in New Jersey, is located in Essex County.

The annual civilian labor force within the ROI consisted of approximately one million workers in 2006 (DLWD, 2006), with an annual average unemployment rate of 4.9 percent which approximated the statewide average unemployment rate. The current ROI labor force represents a 2.3 percent increase since 2000, less than the statewide increase of 4.6 percent during the same period. Morris County had the greatest absolute increase in the labor force during this period, with Warren County having the greatest relative increase. Because of in-commuting, the employment in the five-county ROI exceeds its labor force. Total employment within the ROI exceeded 1.2 million in 2004, an increase of approximately 14,000 since 2000. This one percent increase compared to a statewide increase of almost three percent during the same period. The majority of the increase in employment within the ROI occurred in Morris and Sussex counties, while employment decreased in Union County during this period.

Picatinny is the third largest employer in Morris County and provides a major positive economic impact to the region. A 2003 study by the New Jersey Commerce & Economic Development Commission examined the direct effects of military operations, employee payrolls and other expenditures. Additional considerations included indirect effects of labor, services, materials, and other items purchased by firms that supply and service Picatinny. In providing 4,036 direct jobs, it was estimated that an additional 6,518 indirect jobs are also attributable to the installation's presence. In 2002, wages paid to direct employees of the installation and the collocated organizations were \$313,208,200. Wages paid to secondary workers accounted for an additional \$252,171,840. The study concluded that, "Picatinny Arsenal contributes an estimated \$1.015 billion annually in output to the New Jersey economy", and supports more than 10,000 jobs (Picatinny Arsenal, 2007a).

In 1999, there were a total of 766,011 housing units and 729,062 households in the Newark PMSA (US Census, 2000). This represented an approximate five percent increase in housing units and households since 1990. Approximately 50 percent of the increase in housing units and households within the Newark PMSA during this period occurred in Morris County. Housing units and household formation increased by over 10 percent in Sussex and Warren counties, while Essex County had the smallest absolute and relative increase during this 10-year period. During the same period, there was an eight percent increase in housing units and a 10 percent increase in households on the statewide level.

Selected housing characteristics related to occupancy status, median value, vacancy rate, and median household income are shown in Table 4.1. The owner-occupancy rate approximates 61 percent for the Newark PMSA, with owner-occupancy ranging from over 75 percent in Morris and Sussex counties to less than 50 percent in Essex County. The median value of \$200,665 for owner-occupied housing in the Newark PMSA was considerably higher than the statewide median value. Median values for owner-occupied housing units within the Newark PMSA vary widely, ranging from over \$250,000 in Morris County to less than \$160,000 in Sussex and Warren counties (US Census, 2000). The statewide median housing value approximated \$168,000 in 2000. The range in median county household incomes within the ROI reflects the respective range in median county housing values.

The owner-occupancy rate approximates 61 percent for the Newark PMSA, with owner-occupancy ranging from over 75 percent in Morris and Sussex counties to less than 50 percent in Essex County. The median value of \$200,665 for owner-occupied housing in the Newark PMSA was considerably higher than the statewide median value. Median values for owner-occupied housing units within the Newark PMSA vary widely, ranging from over \$250,000 in Morris County to less than \$160,000 in Sussex and Warren counties (US Census, 2000). The statewide median housing value approximated \$168,000 in 2000. The range in median county household incomes within the ROI reflects the respective range in median county housing values.

Table 4.1: Housing Characteristics, Picatinny Arsenal Region of Influence, 2000.

County	Total Households	Total Housing Units	Percent Housing Units Vacant	Percent Owner Occupied	Median Value Owner-Occupied	Median Household Income
Essex	283,736	301,011	6	46	\$188,400	\$44,944
Morris	169,711	174,370	3	76	\$250,400	\$77,340
Sussex	50,831	56,528	10	83	\$157,600	\$65,266
Union	186,124	192,945	4	62	\$185,200	\$55,339
Warren	38,660	41,157	6	73	\$156,400	\$56,100
Total, ROI	729,062	766,011	5	61	\$200,665	\$57,145

Source: US Census Bureau, 2000 Census.

4.2.6 Environmental Justice

The purpose of Executive Order (EO) 12898, Federal Actions to Address Environmental Justice in Minority and Low-Income Populations is to avoid the disproportionate placement of adverse environmental, economic, social, or health impacts from Federal actions and policies on minority and low-income populations or communities (Executive Office of the President, 1994).

Table 4.2: Minority and Low-Income Populations, Picatinny Arsenal Region of Influence.

County	Total Population (2005) (Estimated)	Percent Minority Population (2005) (Estimated)	Median Household Income in Dollars (2004)	Persons Below Poverty (2004)	Percent Persons Below Poverty (2004)
Essex	791,057	49	\$44,486	107,230	13.9
Morris	490,593	12	\$82,173	19,608	4.1
Sussex	153,130	4	\$71,013	6,628	4.4
Union	531,457	29	\$55,247	48,078	9.1
Warren	110,376	4	\$61,281	5,944	5.4
ROI, Total/Avg.	2,076,613	29	\$58,648	187,488	9.0
New Jersey	8,717,925	23	\$57,338	717,238	8.4

Source: US Census Bureau, 2000 US Census; US Census Bureau, Small Area Income and Poverty Estimates, 2005.

As shown on Table 4.2, in the Newark Primary Metropolitan Statistical Area (PMSA) region of influence (ROI) the average minority population of 29 percent is higher than that in the State of New Jersey (23 percent). Morris County, which contains the Picatinny Arsenal, has a minority population of 12 percent, which is substantially lower than that of the ROI. Based on the most recent US Census estimates, the proportion of persons below poverty (or low-income persons) in the ROI (nine percent) is slightly higher than that of the State of New Jersey (8.4 percent). No disproportionate adverse impacts are anticipated to minority or economically disadvantaged populations.

4.2.7 Soil Contamination

Past waste disposal practices and releases have contaminated groundwater, soil, and sediments at specific sites of Picatinny. The US Environmental Protection Agency (USEPA) placed Picatinny Arsenal on the National Priorities List (NPL) in March 1990.

In 1992, under the requirements of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), the Army identified 175 contaminated or potentially contaminated sites on Picatinny Arsenal. Past activities at these sites created contamination that included volatile organic

compounds, semi-volatile organics, metals, polychlorinated biphenyls (PCB), benzo(a)pyrene, nitroaromatics, propellants, radiological material, and pesticides. These contaminated sites are identified in Figure A.2, and discussed in more detail in the Picatinny Arsenal Installation Action Plan (Picatinny, 2007b).

For those remediation sites where some contamination remains, the Army and USEPA would issue a Record of Decision (ROD), with Institutional Controls (ICs) and/or Land Use Controls (LUCs) that must be implemented in order to minimize the risk of exposure to hazardous substances. These controls become mandated requirements for future development projects. The Master Plan itself is considered a major and binding institutional control part of the LUCs, similar in effect to a deed on private property.

It is likely that excavation for the Proposed Action would result in excess soil at the project sites which may be contaminated from earlier activities on the installation. Therefore, soil clearance, as outlined in the Picatinny Arsenal Soil Clearance Policy (Picatinny Arsenal, 2004b), should be performed by the design contractor. The excess soil should be tested per NJDEP Technical Regulations before moving to an approved location on the Arsenal or potentially offsite. Adherence to the Picatinny Arsenal Soil Clearance Policy and implementation of erosion control best management practices would minimize the potential affects of soil erosion or of contaminated soil.

The Military Munitions Response Program (MMRP) was established in 2001 to manage the environmental, health and safety issues presented by unexploded ordnance (UXO), discarded military munitions (DMM) and munitions constituents (MC). The MMRP is an element of the Defense Environmental Restoration Program (DERP), under which the Secretary of Defense carries out environmental restoration resulting from historical activities. The Department of Defense established the MMRP to reflect the statutory program goals established for the DERP, to enhance understanding of the nature of munitions response sites, and to manage response activities more effectively. Since the DERP is intended to address environmental problems remaining from past practices, the MMRP does not cover munitions responses for areas that operated after fiscal year 2002. Important elements of the MMRP are as follows:

- Requires the DoD to establish and maintain an inventory of non-operational ranges that contain or are suspected to contain UXO, DMM or MC;
- Establishes the requirement to identify, characterize, track and report data on MMRP sites and response actions;
- Requires a sequencing process to prioritize site cleanup and site-specific cost estimates to complete the response; and
- Requires installations to program and budget for MMRP response actions.

Picatinny has completed a comprehensive inventory of its non-operational training ranges and defense sites with UXO, DMM or MC. Currently, Picatinny is conducting a historical records review of its MMRP sites.

Prior to land disturbing activities, the proposed construction site will be evaluated for UXO and discarded military munitions, and the soil will be tested for contamination that could pose a health threat. The installation has a series of controls and standard operating procedures relating to ground disturbing activities that protect human health and the environment.

4.2.8 Soil Erosion

Morris County regulations require development projects that involve the disturbance of over 5,000 square feet of soil to prepare, submit, and obtain approval of a Soil Erosion and Sedimentation Control Plan prior to initiation of earth moving. The objective of this plan is to reduce construction-related erosion and sedimentation. Direct impacts to water resources, such as the degradation of water quality from nonpoint

source pollution (e.g., uncontrolled storm water runoff and soil erosion), would be minimal because of BMPs designed to reduce such impacts. Examples of BMPs include: the use of silt fences to minimize erosion and siltation in aquatic habitats; the siting of new facilities away from surface water bodies; the establishment of streamside management zones; the control and collection of stormwater runoff from impervious surfaces (i.e., roads, parking lots); and the creation of natural resource management plans and other management efforts to protect water quality and aquatic habitat.

4.2.9 Floodplains

Picatinny contains numerous surface watercourses, varying from a few feet in width to over 30 feet wide during normal conditions. Steep and rocky streambeds are common and these characteristics promote rapid runoff during periods of extreme precipitation or snowmelt. The dense tree and vegetation cover on other portions of the installation tend to retard and reduce the runoff contributing to flooding.

A hydrologic analysis has been performed to identify and delineate areas on Picatinny that would be inundated by a 100-year flood. The 100-year flood plain associated with Green Pond Brook encompasses approximately 300 acres and primarily affects the lowlands between Parker Road and Phipps Road south of Shinkle Road. No development can occur within any flood plain without a permit issued by the NJDEP in addition to zero percent net fill. The 100-year flood zone on the installation is shown in Figure A.3 (Appendix A). Picatinny Arsenal prepared a Flood Study in October 2003 (Picatinny, 2003b) to investigate the frequency and severity of flood hazards on the arsenal. The study area included Lake Denmark Dam traveling to Picatinny Lake and from Picatinny Lake down State Route 15. Green Pond Brook and Burnt Meadow Brook were also included in the study. Flooding can be expected in any season at Picatinny. The Arsenal lies within major storm tracks of the eastern United States and may experience periods of snowmelt with heavy rain in the spring. During the late summer and fall, Picatinny may experience flooding associated with tropical storms. Picatinny's flood control measures include preventing construction in low areas along existing streams.

4.2.10 Natural Resources

Picatinny supports a diversity of habitats and provides resources for a variety of plants, fish, and other wildlife species. The Picatinny INRMP provides detailed information on the fish and wildlife found on the installation (Picatinny, 2001). Various inventories have confirmed the occurrence of 315 vertebrate species including 208 bird species, 41 mammals, 19 reptiles, 21 amphibians, and 26 fish species (Picatinny, 2001). Picatinny's 4,000 acres of forests, combined with adjacent public natural areas provide more than 11,000 acres of contiguous wildlife habitat.

The forest is a result of ecological succession of land previously farmed or cleared, as well as more recent selective logging. Most of the forested portion of the installation was historically logged and is in second-growth stages. Forest types include mixed oak (65 percent), northern hardwood (13 percent), hemlock (8 percent), red and white pine (less than one percent), red maple (13 percent), aspen/gray birch (less than one percent), and hemlock wetland (less than one percent).

The Garrison's current management practices are aimed at maintaining the forest with minimal loss of cover. The terrain reduces the return from timber harvesting. Selective harvesting is practiced to reduce disturbance and minimize destruction of buffer zones and wildlife habitat. Tree removal and trimming projects are confined to the period between November 15th and April 1st to protect essential Indiana bat habitat. Dead trees provide potential roosting habitat for the Indiana bat and are allowed to remain as long as they do not pose a safety hazard.

The Picatinny ESMP (Picatinny, 2007) authorizes the installation to remove up to 280 acres of trees during the period from 2008 to 2013. It is estimated that implementation of projects in the RPMP will result in permanent removal of approximately 12 acres of forested area on the installation. Tree removal will be done in accordance with the installation's INRMP and ESMP. Planned tree removal (i.e., 12 acres)

to implement the RPMP is less than 10 percent of the installation's authorized limit (280 acres), and will be accomplished within the constraints outlined in the ESMP, and INRMP. Figure A.3 (Appendix A) shows the natural constraints to future development on Picatinny. This figure shows surface water, wetlands, wetlands buffer areas, and floodzone areas on the installation. Implementing the RPMP will have minimal negative affect Picatinny Arsenal's natural resources.

4.2.11 Infrastructure

Picatinny does not operate a municipal solid waste landfill. Instead, the solid waste is collected and transported to the Mt. Olive Transfer Station operated by Morris County Municipal Utilities Authority. The waste is then taken to Tulleytown Landfill, which is operated by Waste Management Inc., for ultimate disposal. Tulleytown Landfill receives some 13,000 tons of solid waste per day and has a life expectancy of five years. Picatinny has been recycling at a rate of 45%, or better, during the past several years. Picatinny complies with the Morris County Solid Waste Management Plan and with New Jersey requirements to recycle certain items from the municipal solid waste stream.

Jersey Central Power and Light supplies electric power to Picatinny via two separate 34.5-kilovolt overhead transmission lines. Sussex Rural Electric Cooperative (SREC) owns, operates, and maintains the electrical distribution system, which has been completely replaced and upgraded over the last several years. Power demand has decreased steadily over the past 10 years, and SREC has been able to meet the annual loads. The Directorate of Public Works (DPW) staff expects future decreases in energy consumption and cost because of increased energy efficiency.

Picatinny's deactivated its central steam plant (Building 506) in 2006 following the successful decentralization of the natural gas-fired boiler plants. Currently, most buildings have their own gas-fired boilers to heat water and provide comfort heat in the winter. As a result of privatization, New Jersey Natural Gas owns, maintains, and operates the natural gas distribution system, which consists of approximately 12 miles of lines. Cooling is provided by self-contained units sized for each facility.

Rail service to Picatinny was provided by the Central Railroad of New Jersey by way of a spur that extended from railroad's secondary line between Wharton and the New York, Susquehanna and Western junction at Green Pond. The spur and the former Central of New Jersey line south of Picatinny are unused but remain in place. North of Picatinny, the rails have been removed, and the installation remains without freight rail service.

Picatinny's roads serve administrative, commercial, living, and industrial areas and provide connections to the local off-post transportation network. Picatinny has approximately 84 miles of roads. Roads are classified as either primary or secondary according to their relative importance and function as part of the roadway network. Primary roads include all roads and streets that serve as main distribution arteries for traffic originating outside and within the installation and that provide access to, through, and between functional areas. Secondary roads supplement primary roads by providing access to, between, and within functional areas. The installation's roadways effectively meet the current traffic load, and except for some delays during morning and peak hours, few problems related to congestion have been reported.

Picatinny's potable water treatment plant is contractor-operated and has a design capacity is one million gallons per day (mgd). The water is provided by three groundwater wells, designated 131, 302D, and 410. Well 410 is not used for potable water supply due to low-level concentrations of explosives. Wells 131 and 302D can produce 1.487 mgd. Picatinny's potable water storage system has three elevated storage tanks and three ground-level storage tanks with a combined capacity for potable water of 1.5 million gallons. The installation's water demand averages 0.64 mgd, or about 40 percent of the two wells' production capacity. The distribution system is presently designed to allow only one well to operate at a time for a maximum daily capacity of 1.008 mgd. The designed treatment capacity of the water treatment plant and the well capacity are approximately 1 mgd. Picatinny's normal water demand averages 0.64 mgd, or 64 percent of the plant's design capacity. The future peak domestic demand to meet both potable

water and fire-fighting requirements is 3.49 mgd. Service water from well 410 would be used to support the installation's fire-fighting requirements. In addition to potable water, service water from Picatinny Lake and Lake Denmark is used to support the installation's firefighting requirements. Picatinny has a capacity, for both potable and service water, of 3.79 mgd (Picatinny, 2007)

Picatinny's water distribution system contains approximately 217,000 linear feet (lf) of water main and lateral lines ranging in size from less than two inches to 12 inches in diameter. The system has an inadequate number of isolation valves, making it difficult to repair the system without disrupting service. When installed prior to 1950, the distribution system was comprised of unlined cast iron pipes. Beginning in the late 1990's the majority of the older water system was replaced. Both the potable water system and service water system suffer from unexplained water loss. Picatinny's contractor has a leak detection program in place, but has been unable to isolate the potable water loss without more detailed investigation. Certain areas of Picatinny, such as the northern portions of the 600-area and the 900-area are located outside the potable water system's service area. On most US Army posts, a site not served by drinking water would be considered unsuitable for development. At Picatinny, however, considerations that include research objectives, operational security, explosive safety and availability of land may override the potable water supply issue. Several projects in the Picatinny RPMP have such requirements and will be built beyond the water system's service area. While in need of repair, and some upgrades, the Picatinny water distribution system is capable of supporting the RPMP. Implementing the RPMP and component plans thereof and the EUL will not have an adverse affect on Picatinny Arsenal's infrastructure systems.

4.2.12 Water Resources

The surface water systems of Picatinny consist of two lakes, 8 ponds, four perennial brooks, several intermittent runs, three freshet waterfalls, and a few springs and seeps scattered throughout the installation. Picatinny falls within the northern portion of New Jersey's delineated Watershed Management Area Six in the Rockaway Sub-watershed. Watershed Management Area Six serves as the primary water supply for northern New Jersey. Green Pond Brook joins the Rockaway River about one mile downstream of the installation.

Picatinny's two large man-made lakes are essential to daily operations. Lake Denmark is located at the northern end of the valley at an elevation of 840 feet above mean sea level. It has a maximum depth of about 12 feet and covers 174 acres. Burnt Meadow Brook feeds Lake Denmark at the northern end of the lake. The lake has a length of about 7,000 feet and a capacity of approximately 331 million gallons. Lake Denmark is classified by NJDEP as Freshwater 2-Non-Trout (FW2-NT) (NJDEP, 2008b).

Picatinny Lake is fed by Green Pond Brook and water released from Lake Denmark. The lake is approximately 5,000 feet long, 11 feet deep, 108 acres in size, and has a capacity of approximately 164 million gallons. Picatinny Lake has been classified by NJDEP as FW2-NT. Both lakes are sources of non-potable water that also support recreational fishing.

Picatinny's lakes and streams follow the topographical pattern of the valley and drain from northeast to southwest. Green Pond Brook and Ames Brook carry water off-post. Green Pond Brook is classified as Freshwater 2-Trout Maintenance (FW2-TM) below Picatinny Lake (NJDEP, 2008b). Green Pond Brook, which flows completely through the installation, is Picatinny's primary natural drainage. Its tributaries are Bear Swamp Brook and Burnt Meadow Brook. Bear Swamp Brook is classified as FW2-NT. Burnt Meadow Brook and the reach of Green Pond Brook above the confluence into Picatinny Lake are listed as Freshwater 2-Trout Producing, Category 1 (FW2-TP (C1)). At the southwest end of the installation, Green Pond Brook feeds into natural wetlands before emptying into the Rockaway River. Implementing Picatinny's RPMP will not affect the installation's water resources.

As of June 16, 2008, all water systems (lakes, streams, named and unnamed tributaries with defined bed and bank and drainage area over 50 acres) are Category 1 with a 300 ft riparian buffer on each side.

Vegetative disturbances inside these riparian corridors in excess of the maximum allowable disturbances in (Table C, NJAC 7:13-10.2) will require some kind of mitigation to compensate for vegetative loss and should be considered when identifying potential project sites. Implementing Picatinny's Real Property Master Plan will not adversely affect the installation's water resources as long as regulatory requirements are followed.

4.3 PROGRAM RESOURCE AREAS

A program resource area is a subject area that warrants further discussion because of the potential effect the proposed action may have on a valued environmental component. Resource areas in this category include:

4.3.1 Wetlands

Wetlands at Picatinny are primarily composed of muck and peat formed in poorly drained glacial soils. These areas include freshwater marshes (defined as wetland systems dominated by herbaceous cover) and freshwater swamps (defined as wetlands that contain a prominent over-story). Most of the wet areas are located in the Green Pond Brook flood plain at the southern end of the installation. This area has been highly disturbed in the past and the southernmost 5,000 feet of Green Pond Brook runs through floodplain wetlands that were drained by a series of constructed drainage ditches. This segment of Green Pond Brook was channeled by dredging in 1944. These areas also contain a network of upland areas that were created from fill material. The upland areas provided sites for buildings, railroad beds, roadways, parking areas, and work areas. A second major flood plain wetland is located in the vicinity of Burnt Meadow Brook, north of Lake Denmark. Other smaller wet areas occur as narrow fringes along lakes, streams, and seepages.

There are an estimated 1,250 acres of wetlands at Picatinny. This is based on National Wetland Inventory (NWI) maps, as well as various planning level surveys, including a study conducted by the Waterway Experiment Station (WES) in 1994. Because wetland size and location has only been estimated by NWI mapping, site-specific jurisdictional delineations are needed to assess the actual extent of wetlands. Outside of isolated project sites, the wetlands at Picatinny have not been delineated jurisdictionally. Depending on the circumstances, construction or other disturbance within the transitional buffer may require NJDEP wetland permitting, a mitigation plan, NJDEP stream encroachment permitting and/or USFWS consultation. These actions may require mitigation measures, such as setting aside other land for transitional buffers or establishing replacement wetlands at a negotiated ratio. For planning purposes, when designating future land uses or siting new construction, the practical strategy is to delineate potential wetland areas in order to know the location of wetlands and their transitional zone buffers, riparian corridors, stream encroachment, and flood plains.

It is estimated that the Explosive Ordnance Disposal Technology Facility project will disturb approximately 1.3 acres of wetlands. Several projects may involve disturbing a total of approximately 1.83 acres of land within the 150-foot transition area around wetlands areas. Table 4.3 identifies projects that may involve disturbances within the wetlands transition areas. Figure A.3 outlines the known wetlands and wetlands buffer areas on the installation.

Table 4.3: SRC Projects affecting wetlands	
Project	Acres of Transition Area Affected
Ballistics Evaluation Center	0.1
Soft Recovery System Facility	0.2
Experimental Evaluation Facility	0.03
Dam upgrades	0.2
Explosive Ordnance Disposal Technology Facility	1.3
Total:	1.83

Implementation of projects that involve construction within the transition area of wetlands require a permit issued by the New Jersey Department of Environmental Protection (N.J.A.C. 7:7A, subchapter 7) and mitigation (N.J.A.C. 7:7A, subchapter 15).

4.3.1.1 Potential Wetlands Resources Consequences of Alternative 1 – No Action Alternative

Under the No Action Alternative, current operations at Picatinny would continue with no additional construction and little risk of disturbing existing wetlands.

4.3.1.2 Potential Wetlands Resources Consequences of Alternative 2 – Implement the Short Range Component of the Master Plan and the Enhanced Use Lease (EUL)

Implementing the SRC of the Picatinny RPMP will have no direct effect on wetlands. Implementing the SRC projects will affect small portions of the transition areas around wetlands. The installation will require a permit from the New Jersey Department of Environmental Protection before initiating each of the projects identified in Table Section 4.3.1 and Table 2.1. The installation will implement known and established and best management practices to minimize soil erosion from future construction sites. The proposed 20-acre EUL is projected for construction in and adjacent to existing wetlands near the installation's front gate. This element of the EUL will require permitting from the NJDEP before construction can begin.

4.3.1.3 Potential Wetlands Resources Consequences of Alternative 3 – Implement the Picatinny Arsenal Real Property Master Plan, All Component Plans, and the Enhanced Use Lease (EUL)

Table B.1 (Appendix B) provides a listing of projects on the short- and long-range components of the Picatinny RPMP. The final location of the projects in the LRC has not been finalized, but their siting in relation to wetlands will be a factor. Projects will be sited to avoid or minimize potential effects on wetlands. Any project that affects a wetlands or transition area will require a permit from the NJDEP before construction can begin.

4.3.2 Land use

Picatinny is located in Morris County, New Jersey (Figure 2.1). The installation lies just west of the greater New York/New Jersey Metropolitan Area, 32 miles northwest of Newark and 42 miles west of New York City. Local boroughs in the immediate vicinity are Wharton (1 Mile), Dover (3 miles), and Rockaway (5 miles). Interstates 80, 280 and 297 comprise the major travel thoroughfares in the area. State Route 15 forms the southern boundary of the installation and provides access to the installation's main gate (Figure 4.1).

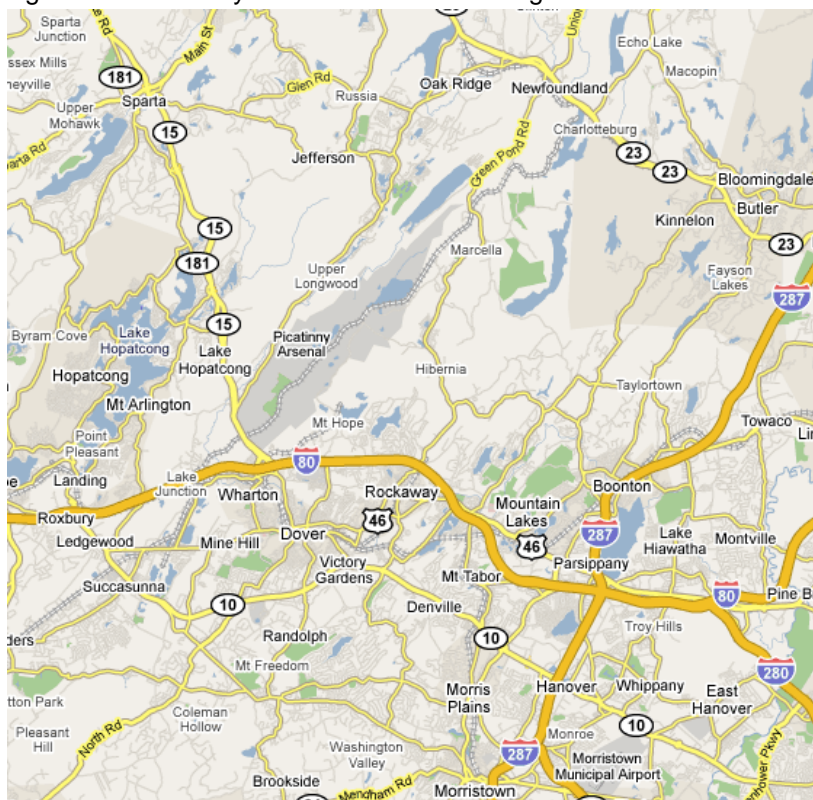
Picatinny's physical layout is closely tied to its development as a munitions manufacturing arsenal and storage depot. The installation is spread out over 5,853 acres, with much of the open space (unimproved grounds) between facilities reserved as explosive safety zones. Figure A.4 shows existing land use on Picatinny Arsenal. In addition, five perpetual restrictive (safety) easements ranging in area from 47.4

acres to 355.7 acres are located adjacent to the installation's eastern and western boundaries. These easements restrict private property owners from making capital improvements on their lands (See Figure A.5).

Picatinny has about 800 buildings totaling almost four million square feet. Picatinny contains approximately 4,000 acres of forest and an estimated 1,250 acres of wetlands and water bodies, including two lakes, Picatinny Lake and Lake Denmark. Picatinny's physical assets also include:

- 122 acres of outdoor recreation space, including an 18-hole golf course;
- 84 miles of roads, 31 bridges and 336,000 sf of parking;
- Two federally-classified dams and six minor dams;
- 202,000 linear feet of fencing for its perimeter and restricted areas; and
- Utility systems (potable and service water, sanitary sewer, electrical, natural gas, and steam distribution).

Figure 4.1 Picatinny Arsenal and surrounding area.



Source: <http://maps.google.com>

Picatinny supports 50 percent more military personnel than are assigned to the installation because of the high concentration of independent duty personnel in the surrounding area. Independent duty personnel occupy 48 percent of the total family housing. Because of the shortage of family housing, most quarters are not designated by rank category; only quarters for two general officers and quarters for 10 senior

officers are designated by rank category. There are currently 116 housing units for military personnel at the installation. The family housing is located in six housing areas: JP Farley, Lenape Place, Middle Forge Apartments, Spicer Village (East), Spicer Village (West), and Naval Hill Housing. The occupancy rate is usually 90 percent (USACE, 2004). The family housing units located downtown near the northeast corner of Farley Avenue and Reilly Road are incompatible with the adjacent maintenance shops and motor pool. The land use plan calls for these units to be relocated to Navy Hill, where they would be compatible with their surroundings. The guest house (Building 110) and the other units located along Farley Avenue would remain in place.

Construction of new facilities identified in the Picatinny RPMP will be done consistent with existing land uses, and will not affect residential or recreational land uses. Proposed new construction activities are within the installation boundaries and will not affect land uses off the installation.

4.3.2.1 Potential Land Use Consequences of Alternative 1 – No Action Alternative

Under the No Action Alternative, Picatinny would continue to use its current inventory of facilities. Picatinny would not be able to make optimum use of its land to support the mission. Implementing only the SRC would have a minor negative impact on land use on the installation from not relocating several housing units currently located near some of the installation's industrial operations, and long-term adverse impacts in land use incompatibilities on the installation would continue.

4.3.2.2 Potential Land Use Consequences of Alternative 2 – Implement the Short Range Component of the Master Plan and the Enhanced Use Lease (EUL)

Implementing the SRC will have no effect on land use of non-government properties outside the installation's border. Implementing only the SRC would have a minor negative impact on land use on the installation from not relocating several housing units currently located near some of the installation's industrial operations, and long-term adverse impacts in land use incompatibilities on the installation would continue. This alternative will allow implementation of Phase II of the EUL and for Picatinny to make optimum use of its land to support the mission.

4.3.2.3 Potential Land Use Consequences of Alternative 3 – Implement the Picatinny Arsenal Real Property Master Plan, All Component Plans, and the Enhanced Use Lease (EUL)

Implementing the RPMP will have no effect on land use of non-government properties outside of the installation's border. Implementing the RPMP and all its component plans will allow Picatinny to make optimum use of its land to support the mission, and to implement solutions to existing land use incompatibilities.

4.3.3 Cultural Resources

Picatinny contains a significant number of historic buildings that are protected in accordance with federal legislation and Army regulations. NHPA, Section 106 mandates that Picatinny consult with the SHPO to identify and protect all Historic Properties, including archaeological sites, Native American and cultural resources, historic buildings and structures, and historic districts. In order to fulfill compliance with Section 106, Picatinny must subject all undertakings with ground disturbance in previously uninvestigated areas, including the rehabilitation, renovation, ongoing maintenance, and potential demolition of buildings and structures in consultation with SHPO. If Native American resources, remains, sacred objects, and/or objects of cultural patrimony are found during the Section 106 process, the Native American Graves Protection and Repatriation Act, among other federal Native American legislation, Army regulation, and Executive Orders, require that Picatinny consult with any interested federally recognized Tribes and their respective Historic Preservation Officer or Liaison (THPO). All of these historic preservation investigations must also meet the Secretary of Interior's Standards and certain SHPO requirements.

Picatinny manages Historic Properties through the Integrated Cultural Resources Management Plan (ICRMP; Picatinny, 2003a). This plan identifies all previous and current cultural resource management activities and needs that have occurred and continue at the installation; along with addressing and documenting all federal historic preservation legislation and Army regulation pertinent to protecting these Historic Properties. Guidance and Standard Operating Procedures within the ICRMP allow Picatinny to efficiently manage all known and unknown Historic Properties within the military mission. This plan is updated every five years with annual updates occurring internally by the CRC and will be updated again in 2008. This update will include Section 106 identification and evaluation status for this RPMP with potential treatment and mitigation options for SRC, LRC, and CIS projects that are further in design.

Future development can be constrained by the Section 106 process and mitigation preservation process. Development plans that involve potential effects Historic Properties must allot sufficient time for SHPO consultation and processing which can take one or more years if Properties eligible for the National Register of Historic Places (NRHP) are involved.

Due to Picatinny's unique historic heritage, there have been several building assessments prepared for the Arsenal since 1982. Currently, historic buildings assessments have been conducted for roughly 75% of the installation's buildings. Based on current assessments, Picatinny has been determined to lack sufficient integrity to form a single historic district; instead, five smaller areas, containing 125 structures, have since been recommended to be eligible as historic districts since 1999.

The five NRHP eligible Historic Districts are identified as follows:

- Administration and Research Historic District. This district consists of roughly 35 acres adjacent to Farley Avenue and Buffington Road. The district includes 23 contributing buildings and one non-contributing building. All the structures in this district were constructed between 1884 and 1942.
- 600 Ordnance Testing Area Historic District. This district consists of roughly seven acres located in the west-central portion of Picatinny. The district includes 28 contributing and three non-contributing structures. All of the facilities in the district were constructed between 1914 and 1943. Additional structures within the 600 test area are pending for NRHP eligibility or have not been assessed yet for their overall significance within this historic district.
- Test Area E, Naval Air Rocket Test Station Historic District. This district encompasses the former Naval Air Rocket Test Station and consists of roughly 15 acres located along Snake Hill Road in the east-central portion of Picatinny. The district includes two structures.
- Test Area D, NARTS Historic District. This district encompasses the former NARTS Test Area D and consists of roughly 8 acres located along Snake Hill Road in the east-central portion of Picatinny. The district includes 15 contributing buildings and three non-contributing buildings.
- Rocket Test (1500) Area. This district consists of 34 contributing, and 7 non-contributing structures that played a significant role in part of the US and Army's space developing programs and tests adapting rockets to accommodate nuclear warheads, such as the Honest John, Redstone, Little John, and Nike Ajax.

Additionally, there are two individual historic buildings and one historic feature [eligible for the NRHP](#). These resources are:

- Building 3250. Building 3250 was constructed in 1890 and served as the Naval Commander's home from the time the land was transferred to the Navy in 1891 until control was relinquished back to the Army in 1960.
- Building 3316. Building 3316 was constructed in 1903 as a stable but was later converted to a fire house.
- Cannon Gates. The Cannon Gates were manufactured by melting down cannons and cannonballs at the Cornell, New York, Ironworks in 1885. The gate is located at the intersection of Buffington Road and Parker Road.

To date, Phase I cultural resource surveys have been conducted for roughly 630 acres across the installation. The current archaeological inventory at Picatinny consists of 12 prehistoric (Native American) archaeological sites and nine historic period sites. Phase II investigations have been completed at three of the prehistoric sites, however none of these sites are eligible for inclusion in the National Register of Historic Places. The Walton family graveyard is located northwest of the Mount Hope gate. Oral tradition identifies the cemetery as the burial site of former Hessian soldiers conscripted to work in the local iron industry. Additionally, an archaeological sensitivity assessment has identified over 100 potential archaeological resource locations that may no longer exist. These potential cultural resources include, but are not limited to, prehistoric camp sites and/or lithic scatters, historic farmsteads, dwellings, forge related areas, and early Picatinny development.

Based on a preliminary review of the installation's cultural resources data layer on its GIS system, the proposed site for several projects (listed below) in the SRC may be located on or adjacent to potential historic properties and cultural resources:

- Fuze Engineering Complex
- Dam Upgrade
- Packaging, Handling, Storage, and Transportation Center (PHS&T)
- Ballistics Evaluation Center
- Guns & Weapons Tech Data Facility
- Explosive Ordnance Disposal Technology Facility

The majority of these projected construction sites are being archaeologically surveyed for historic or cultural resources. Proposed construction sites should be surveyed, in coordination with the SHPO, for potential historic or cultural resources before construction begins. If historic or cultural resources are identified, the installation would initiate consultation with the SHPO under Section 106 of the NHPA. The installation could mitigate any potential harm to historic or cultural resources by, in coordination with the SHPO, recording, documenting the nature and characteristics of the resource.

4.3.3.1 Potential Cultural Resources Consequences of Alternative 1 – No Action Alternative

Under the No Action Alternative, Picatinny would continue to use its current inventory of facilities, and it would not implement the SRC of the installation's master plan. The No Action Alternative would not affect existing known, or unknown, historic or cultural resources.

4.3.3.2 Potential Cultural Resources Consequences of Alternative 2 – Implement the Short Range Component of the Master Plan and the Enhanced Use Lease (EUL)

Preliminary review of the cultural resource data in the installation's GIS system indicates several projects may be on or adjacent to potential historic properties and cultural resources. To avoid damaging those resources, the installation should conduct archaeological surveys of the proposed sites, and adjust

project siting accordingly and initiate consultation with the SHPO. If alternate sites are not available, the installation should initiate the Section 106 process in accordance with the NHPA, and in coordination with the SHPO, identify, and implement mitigation measures to identify, document and preserve appropriate historic or cultural resources.

4.3.3.3 Potential Cultural Resources Consequences of Alternative 3 – Implement the Picatinny Arsenal Real Property Master Plan, All Component Plans, and the Enhanced Use Lease (EUL)

Preliminary review of the cultural resource data in the installation's GIS system indicates several projects may be on or adjacent to potential historic properties and cultural resources. To avoid damaging those resources, the installation should conduct archaeological surveys of the proposed sites, and adjust project siting accordingly and initiate consultation with the SHPO. If alternate sites are not available, the installation should initiate the Section 106 process in accordance with the NHPA, and in coordination with the SHPO, identify and implement mitigation measures to document and preserve appropriate historic or cultural resources. Similarly, the installation should initiate archaeological surveys at proposed sites for construction projects identified in the LRC, and if cultural or historic resources are identified, initiate consultation with the SHPO under the provisions of Section 106 of NHPA.

4.3.4 Air Quality

The Clean Air Act requires EPA to set National Ambient Air Quality Standards for pollutants considered harmful to public health and the environment. National and New Jersey Ambient Air Quality Standards (NAAQS and NJAAQS, henceforth referred to as AAQS) have been established for six specific air pollutants ("criteria" pollutants). Picatinny Arsenal is located in Morris County, New Jersey which meets the National and New Jersey AAQS for all criteria pollutants except ozone (8-hr) and PM 2.5. Therefore, Morris County is designated by EPA, per Title 40 CFR 81, as a non-attainment area for both ozone (moderate) and PM 2.5.

Picatinny Arsenal is currently having a short-term air quality impact for lead emissions based on the most recent facility-wide air impact model. Any future operations that will emit lead emissions will further impact the air quality. As operations come online and as more information on projects is obtained, the model should be updated and reviewed to ensure no adverse impacts. However, the facility is within the current National Ambient Air Quality Standard limit set by the Environmental Protection Agency. The results of the air model represent on-going activities and do not address past activities.

Measured ambient air quality data from New Jersey Department of Environmental Protection (NJDEP) monitors in the vicinity of the Arsenal are summarized in Table A.1 Appendix B. For short-term concentrations, the highest and second-highest values over a recent three-year period are provided. For annual concentrations, the maximum value over the three-year period is provided. Table B.1 also shows the AAQS for each averaging time for the criteria pollutants. As this table shows, the measured concentrations for criteria pollutants at monitors in the vicinity of the Arsenal are below the established standard, and except for ozone, are generally only a small fraction of the National and New Jersey AAQS. Based on facility-wide potential emission rates, the installation is classified as a major source of air contaminants pursuant to the New Jersey Administrative Code Title 7, Chapter 27, Subchapter 22 (NJAC 7-27:22) and is subject to the Federal Title V operating permit program requirements specified in that regulation. Picatinny Arsenal is currently operating under a Title V Operating Permit issued by the NJDEP.

Picatinny's Title V Operating Permit identifies significant, insignificant, and fugitive sources of air contaminant emissions from stationary sources on the installation. New air emission source activities are added to the permit as activities and operations dictate. New air emission sources as well as

modifications to existing sources are identified and reviewed in the context of New Jersey Administrative Code (N.J.A.C. 7-27) and the Code of Federal Regulations.

Table 4.4: Picatinny Permitted Potential Pollutant Emissions as of May 2007¹

Pollutant	Emissions (tons) ²
Volatile organic compounds (VOCs)	9.07
Nitrogen Oxides (NO _x)	73.1
Carbon monoxide (CO)	42.1
Sulfur dioxide (SO ₂)	25.2
Particulate matter, PM ₁₀	6.6
Total suspended particulates (TSP)	7.4
Lead (Pb)	0.0084
Hazardous air pollutants (HAPs)	1.5

1. Source Operating Permit BOP070004; 2. Does not include emissions from insignificant sources

Table B.2 (Appendix B) summarizes the total emissions associated with the Proposed Action. Construction-related emissions would be temporary and only occur during the construction period for these facilities. Operational emissions associated with the operation of the facilities including utilities and new employee vehicle emissions would be long-term and occur throughout the life of the facility. When compared to the *de minimis* values of 100 tons per year (TPY) of Nitrogen Oxides (NO_x) and volatile organic compounds (VOC) and 50 TPY for PM_{2.5} (particulate matter less than 2.5mm), the emissions associated with implementing the proposed action are below the *de minimis* levels. As a result the Proposed Action is not significant and is not subject to the General Conformity rule requirements. The annual emissions from new construction, measured in terms of tons per square feet per year are: NO_x, 3.41×10^{-5} ; VOC, 6.87×10^{-6} ; PM_{2.5}, 2.98×10^{-6} . Note, 2.98×10^{-6} is equal to 0.00000298.

Picatinny Arsenal operates an open burning ground in an 80 by 400-foot fenced area near building 1179. The purpose of this facility is to dispose of waste, or out-of specification propellants, explosives or pyrotechnics (PEP) that do not, or can not, contribute to the installation's research mission. The open burning of the waste/excess propellant and explosives (energetics) is conducted in three elevated, 3/8-inch thick steel pans containing 6 to 12 inches of compacted clay. The pans are elevated on 6-inch high concrete supports and remain covered while not in operation. The open burning permit allows up to 780 pounds per day (lb/day) of PEP material to be burned; up to 1,560 pounds of waste energetics can be burned per week (81,120 pounds per year). The PEP materials contain cyclotrimethylene trinitramine (RDX), nitrocellulose (NC), cyclotetramethylene tetranitramine (HMX), or trinitrotoluene (TNT).

Material sent to the open burning grounds is either burned for disposal purposes (i.e., propellants) or flashed to remove contamination in order to recycle or salvage the item (i.e., cartridge cases). The vast majority of the waste is derived from excess material in storage at Picatinny that can not contribute to the installation's research mission. The remainder of the PEP burned at this facility is generated as a result of laboratory research and development operations and bench-scale production operations. Open burning activities are restricted to specific weather conditions. Open burning can only be conducted during daylight hours, in winds of 3 to 17 miles per hour, and in clear to partly cloudy weather conditions.

The installation constructed an Explosives Waste Incinerator (EWI) for the treatment of waste propellants and explosives generated at the facility. A trial burn of the EWI was conducted and a trial burn report and notice of compliance was submitted for approval to the NJDEP. Some modifications to the equipment, operating parameters and permit limits were requested and warranted as a result of trials burn evaluation. It is expected that NJDEP will issue final modified air and Resource Conservation and Recovery Act (RCRA) permits and the EWI will operate for some time in a "prove-out" phase, evaluating the treatment of results of burning various types of explosives and propellants. Plans are to reduce most open burning

of waste/excess propellants and explosives once the incinerator is fully operational, at which time the current open burning grounds site (Building 1179) will be closed.

Plans are to eliminate open burning of excess/waste PEP materials at the present site (Building 1179) once the incinerator is operational. Ultimately, three burn pans will be moved to the 500-area but only one will be used at a time to burn only excess/waste PEP materials that cannot be disposed of in the incinerator.

Starting in 2009, open burning operations will be conducted at a new open burning ground located at a higher elevation, and further from the installation property line than the current open burning ground. Daily and annual quantity limitations for this operation are 200 pounds per day and 5,000 pounds per year. The current facility-wide 24-hour lead ground-level concentration including the new open burning grounds (not including the existing open burning grounds) is below all standards. The installation is authorized to conduct open burning operations for up to 81,120 pounds per year, and routinely burns less than 25,000 pounds per year. Future open burning operations will be limited to 200 pounds per day and 5,000 pounds per year. This change is a reduction in the installation's open burning operations and will likely provide an overall improved affect on air quality.

The installation operates an Open Detonation Area, co-located with an outdoor test area, in a remote valley in the northeast section of the installation near Building 1222. Open detonation provides for the demilitarization (demil) of excess, unserviceable, or obsolete conventional munitions and explosives. Items that cannot be safely disposed of by open burning are loaded with high explosives charges and detonated. This facility is operated under the authority of a Subpart X, hazardous waste management permit issued by the NJDEP. Discussion of this subject is provided in Section 4.3.6.

4.3.4.1 Potential Air Quality Consequences of Alternative 1 – No Action Alternative

Picatinny would continue to use its current inventory of facilities. No changes to air quality are anticipated under this alternative as compared to baseline conditions.

4.3.4.2 Potential Air Quality Consequences of Alternative 2 – Implement the Short Range Component of the Master Plan and the Enhanced Use Lease (EUL)

A direct impact to air quality is caused by air contaminant-emitting activities associated with the proposed action. Activities causing direct impacts include construction activities, worker motor vehicles and facility operations. Based on EPA emission factors and guidelines, air emissions from the proposed construction projects were estimated for the non-attainment pollutants (in accordance with the conformity regulations), and are provided in Table B.2, Appendix B. Data in Table B.2 summarizes the estimated short and long-term non-attainment pollutant emissions for each project. These estimates are based on project type and square footage estimates. Short term emissions are those that will cease upon completion of construction while long term emissions will be ongoing and continuous. Typically, one average size building can be constructed per year and no more than four construction projects would be active at any given time. Using the average size building of 34,000 square feet as a baseline, and based on current data, construction of the proposed buildings would cause negligible adverse impact on air quality.

Upon approval by NJDEP to operate the installation's Explosive Waste Incinerator, a reduced amount of waste/excess propellant and explosives will be destroyed at the open burning ground. Operational emissions from lead emitting sources are impacting the ambient air concentration for lead. See cumulative impacts section. Reduction of the quantities of waste energetics burned in the open burning area will have a positive affect on air quality.

4.3.4.3 Potential Air Quality Consequences of Alternative 3 – Implement the Picatinny Arsenal Real Property Master Plan, All Component Plans, and the Enhanced Use Lease (EUL)

Under this alternative, Picatinny would construct and operate the facilities listed in Table B.1 (Appendix B). Implementing this alternative will have a negligible adverse impact on air quality on Picatinny Arsenal. A direct impact to air quality is caused by air contaminant-emitting activities associated with the proposed action. Activities causing direct impacts include construction activities, worker motor vehicles and facility operations. Based on EPA emission factors and guidelines, air emissions from the proposed construction projects were estimated for the non-attainment pollutants (in accordance with the conformity regulations). Table B.1 summarizes the estimated short and long-term non-attainment pollutant emissions for each project. These estimates are based on project type and square footage estimates. Short term emissions are those that will cease upon completion of construction while long term emissions will be ongoing and continuous. Typically, one average size building can be constructed per year and no more than four construction projects would be active at any given time. Using the average size building of 34,000 square feet as a baseline, and based on current data, construction of the proposed buildings would cause negligible adverse impact on air quality.

Upon approval by NJDEP to operate the installation's Explosive Waste Incinerator, a reduced amount of waste/excess propellant and explosives will be destroyed at the open burning ground. Operational emissions from lead emitting sources are impacting the ambient air concentration for lead. See cumulative impacts section. Reduction of the quantities of waste energetics burned in the open burning ground will have a positive affect on air quality.

4.3.5 Traffic and Transportation

Picatinny is situated in proximity to three Interstate highway corridors. Interstate 80 (I-80), which passes just south of the installation, is the major east-west route connecting the New York City area with Cleveland, Ohio, and points west (Figure 4.1). To the south, Interstate 78 (I-78) connects Newark and Allentown, Pennsylvania. Interstate 287 passes east of Picatinny, providing a bypass of New York City while connecting to I-87, I-80, I-78, and the New Jersey Turnpike.

State Route 15 is the primary access to Picatinny, both from I-80 and points north. Route 15 is a four-lane major arterial road with access restricted to grade-separated interchanges and signalized intersections at major cross-streets. The two major access points to the regional road network are the Picatinny main gate on Parker Road and the installation's commercial truck gate on Phipps Road, both of which lead directly to Route 15. Route 46, which is located approximately three miles southeast of the main entrance, is the third access point to the installation.

A traffic study was conducted in August 2007 to evaluate the potential effects on level of service on Route 15 resulting from increased workforce population on Picatinny Arsenal (Clough, Harbour and Associates, (CHA), 2007). This study analyzed the level of service (LOS) on Route 15 based on projected traffic volume from Picatinny as well as projected traffic volume based historic traffic volume on Route 15. Historical traffic volumes on the section of Route 15 near Picatinny indicate the average daily traffic volumes in the project area have increased at an annual rate of approximately 0.5 percent between 2000 and 2006. Traffic volume during AM and PM peak periods has exhibited a similar growth trend. Data obtained from the New Jersey Transportation Planning Authority (NJTPA) indicate average annual growth rate through 2010 of 1.0 percent per year for the AM peak and 2.0 percent per year for the PM peak in the area near Picatinny. The traffic study used the higher values and traffic volumes were adjusted by a factor of 1.041 (1% compounded for 4 years) for the AM peak condition, and a factor of 1.082 (2% compounded for 4 years) for the PM peak condition (CHA, 2007, p. 13).

This study analyzed the current traffic volume and evaluated the impact of additional trips resulting from the projected BRAC population, as well as the projected trips resulting from completing a 150,000 sf administrative and research facility that was part of the Enhanced Use Lease (EUL) program. This 150,000 sf facility was proposed to be located adjacent to Parker Road, near the installation's main gate. The traffic report determined that, with modification of the timing of traffic signals on Route 15 near the installation, the level of service would decrease at the intersection of Parker Road at southbound Route 15 during the afternoon peak hours (CHA, 2007). The proposed EUL project for a 150,000 sf administrative and research center has been postponed, and may be built when market forces indicate a need. Eliminating the increased trips associated with the 150,000 sf facility reduces the potential impact of traffic on Route 15. Facility growth on Picatinny identified in the RPMP will increase trips to the installation and increase traffic on Route 15, but that growth will not be significant, and can be mitigated by adjusting the timing of the traffic signals on Route 15. This mitigation would also address the projected increase in traffic volume from sources other than the Arsenal (CHA, 2007).

Picatinny's roads serve administrative, commercial, living, and industrial areas and provide connections to the local off-post transportation network. Picatinny has approximately 84 miles of roads. Roads are classified as either primary or secondary according to their relative importance and function as part of the roadway network. See Figure A.6. Primary roads include all roads and streets that serve as main distribution arteries for traffic originating outside and within the installation and that provide access to, through, and between functional areas. Secondary roads supplement primary roads by providing access to, between, and within functional areas. There are no reported systemic safety or congestion issues with the road network on the installation.

4.3.5.1 Potential Traffic and Transportation Consequences of Alternative 1 – No Action Alternative

The installation's road network is suitable to safely accommodate the existing traffic demand, and the expected traffic increases that will result from the BRAC Program. The installation will continue with current operations. The No Action Alternative will have little to no affect on traffic.

4.3.5.2 Potential Traffic and Transportation Consequences of Alternative 2 – Implement the Short Range Component of the Master Plan and the Enhanced Use Lease (EUL)

Some minor short-term adverse impacts can be expected from traffic congestion due to construction equipment entering and leaving the construction sites. During the construction phase, intermittent traffic congestion could occur, particularly during rush hours, as vehicles enter and exit Picatinny or transport construction and demolition (C&D) debris from the project sites to the landfill. Such impacts could be minimized by limiting construction vehicle access to a particular gate at Picatinny, minimizing construction vehicle movement during peak rush hours on the installation, and placing construction staging areas in locations that would minimize construction vehicle traffic.

The installation's road network is suitable to safely accommodate the existing traffic demand, and the expected traffic increases that will result from the BRAC Program. The 2007 traffic study (CHA, 2007) concluded that increased traffic volume resulting from implementation of the Building 350-area EUL, the 20-acre EUL and BRAC could be mitigated by adjustments to the timing of traffic signals on Route 15. Implementation of the SRC, to include the SRC and EUL program will increase traffic volume on the installation and on local roadways, but the potential decrease in level of service can be mitigated by adjusting the timing of traffic signals, which would require approval from the NJ Department of Transportation. Implementation of the SRC and EUL will have a moderate effect on traffic and transportation.

4.3.5.3 Potential Traffic and Transportation Consequences of Alternative 3 – Implement the Picatinny Arsenal Real Property Master Plan, All Component Plans, and the Enhanced Use Lease (EUL)

Some minor short-term adverse impacts can be expected from traffic congestion due to construction equipment entering and leaving the construction sites. During the construction phase, intermittent traffic congestion could occur, particularly during rush hours, as vehicles enter and exit Picatinny or transport C&D debris from the project sites to the landfill. Such impacts could be minimized by limiting construction vehicle access to a particular gate at Picatinny, minimizing construction vehicle movement during peak rush hours on the installation, and placing construction staging areas in locations that would minimize construction vehicle traffic. The projects in the LRC are largely characterized as supporting and enhancing current research and testing mission of existing tenant activities. The projects in and of themselves will not directly contribute to a change of mission but will increase in the installation's workforce, which could affect levels of service on both Picatinny Arsenal and Morris County roadways. Any mitigation to reduce the effect of the increased traffic volume will require approval from the NJ Department of Transportation.

4.3.6 Hazardous Material and Hazardous Waste

The Resource Conservation and Recovery Act (RCRA) requires generators of hazardous waste to obtain a permit if they generate 1000 kg (2,200 lb) of hazardous waste. Picatinny currently operates under Permit number 1409E1HP07 for Hazardous Waste Storage. The research and testing operations at Picatinny generate a large variety of hazardous wastes. Picatinny has approximately 90 points of waste generation located throughout various operations. Picatinny has a hazardous waste storage permit. In addition, Picatinny has an interim permit, issued by NJDEP that authorizes open burning and open detonation (OB/OD) of waste/excess explosives and propellants. Hazardous waste generation has dramatically declined in recent years, and Picatinny continues to meet Army goals of waste minimization. Hazardous waste generated on Picatinny is properly stored, managed and manifested to meet appropriate regulations promulgated under RCRA.

The installation constructed an Explosives Waste Incinerator (EWI) for the treatment of waste propellants and explosives generated at the facility. A trial burn of the EWI was conducted and a trial burn report and notice of compliance was submitted for approval to the NJDEP. Some modifications to the equipment, operating parameters and permit limits were requested and warranted as a result of trial burn evaluation. It is expected that NJDEP will issue final modified air and RCRA permits and the EWI will operate for some time in a "prove-out" phase, evaluating the treatment of burning various types of explosives and propellants. Plans are to reduce most open burning of waste/excess propellants and explosives once the incinerator is fully operational, at which time the current open burning grounds site (Building 1179) will be closed.

Excess/waste explosives or propellants sent to the open burning grounds are either burned for disposal purposes or flashed to remove contamination in order to recycle or salvage the item (*i.e.*, cartridge cases). Open burning operations are restricted to very specific weather conditions. Open burning can only be conducted during daylight hours, in winds of 3 to 17 miles per hour (mph) and in clear to partly-cloudy skies. Plans are to eliminate open burning of hazardous waste at the present site (building 1179) once the incinerator is operational. Ultimately, three pans will be moved to the 500-area, but only one will be used at a time to burn only waste explosives or propellants or associated materials that cannot be burned in the EWI.

The RCRA-regulated open detonation (OD) area is co-located with the outdoor test area in a remote valley in the northeast sector of the installation near building 1222. Open detonation provides the demilitarization (demil) of excess, unserviceable, or obsolete conventional munitions and explosives.

Items that cannot be safely disposed of by open burning are affixed with high explosive charges and detonated.

There are two pits at the base of a hill used specifically for demil open detonation operations. Only one pit is used at a time and there is a 20-minute minimum lag time between successive detonations. The material (typically explosives, propellants, metal parts and total assemblies) is placed in one of the pits at a depth of four feet, covered with sand and detonated using explosives. After detonation, the surface is checked for unexploded ordnance (UXO). If any is found, it is collected and prepared for the next detonation. The detonation area is inspected at the end of the day for scrap metal and debris which are collected and sent to another site for flashing, or hot air decontamination as a precautionary measure to ensure removal of any trace amounts of explosives prior to disposal. Open detonation operations do not normally exceed 40 pounds for any detonation event.

ARDEC requested an increase in the total annual detonation capacity from 5,000 to 10,000 pounds to meet mission requirements. The OD operations will continue at its current location. An increase in the annual open detonation operations at Picatinny is subject to approval by the NJDEP and issuance of a Subpart X permit under the regulations governed by RCRA. This permit will also address current contamination and environmental risk. Additionally, efforts are being made to reduce open detonation operations to the maximum extent possible, and to relocate the demil operations for the remaining waste explosive materials to a detonation chamber in the 500-area.

The proposed action is to construct new buildings and facilities, and sustain existing buildings and facilities to support the on-going munitions research mission on Picatinny Arsenal. Construction and maintenance activities generate little, if any hazardous waste. Any waste generated through construction operations are the responsibility of the building contractor, who is legally required to properly dispose of any waste generated from construction activities. Picatinny has an established and mature hazardous materials and hazardous waste management program. Any waste generated by activities in new buildings or facilities would be managed in accordance with existing Picatinny practices. Implementing the Picatinny RPMP, or any component part thereof, will not affect the management of hazardous material or hazardous waste.

4.3.6.1 Potential Hazardous Waste and Hazardous Material Consequences of Alternative 1 – No Action Alternative

Under the No Action Alternative, current operations at Picatinny will continue. The installation's research and development will continue and continue to generate waste propellants and explosives that require disposal.

4.3.6.2 Potential Hazardous Waste and Hazardous Material Consequences of Alternative 2 – Implement the Short Range Component of the Master Plan and the Enhanced Use Lease (EUL)

Implementing the SRC, and associated construction projects will generate little, if any additional hazardous material or hazardous waste. Picatinny has a well-established regulatory-compliant hazardous waste management and manifesting system. Any waste generated from activities within those buildings would be managed and manifested in compliance with current regulations governing hazardous waste. Upon approval by NJDEP to operate the installation's Explosive Waste Incinerator, the installation would reduce its open burning operations. The environmental effects of open detonation operations have not been extensively researched and are not well documented. Increasing the installation's annual open detonation operations from 5,000 lbs to 10,000 lbs is subject to the approval of the NJDEP and that agency's issuance of a Subpart X permit, under RCRA.

4.3.6.3 Potential Hazardous Waste and Hazardous Material of Alternative 3 – Implement the Picatinny Arsenal Real Property Master Plan, All Component Plans, and the Enhanced Use Lease (EUL)

Implementing the Installation's RPMP, and associated component plans, will generate little, if any additional hazardous material or hazardous waste. Picatinny has a well-established regulatory-compliant hazardous waste management and manifesting system. Any waste generated from activities within those buildings would be managed and manifested in compliance with current regulations governing hazardous waste.

Upon approval by NJDEP to operate the installation's Explosive Waste Incinerator, the installation would reduce its open burning operations. The environmental effects of open detonation operations have not been extensively researched and are not well documented. Increasing the installation's annual open detonation operations from 5,000 lbs to 10,000 lbs is subject to the approval of the NJDEP and that agency's issuance of a Subpart X permit, under RCRA.

4.4 CUMULATIVE IMPACTS SUMMARY

4.4.1 Introduction

The cumulative impact analysis evaluates the incremental effects of implementing any of the alternatives when added to past, present, and reasonably foreseeable future DoD actions at Picatinny and the actions of other parties in the surrounding area, where applicable. The cumulative impact analysis has been prepared at a level of detail that is reasonable and appropriate to support an informed decision by Picatinny leadership in selecting a preferred alternative. The cumulative impact discussion is presented according to each of the implementation alternatives listed.

The key components of the cumulative impact analysis include the cumulative impact analysis area, past and present actions, and reasonably foreseeable future actions. The cumulative impact analysis area includes the area that has the potential to be affected by implementation of the Proposed Action at Picatinny. This includes the installation and the area immediately proximate to the installation boundary and varies by resource category being considered.

To determine the effects on air quality from sources emitting hazardous air pollutants (HAPs), Picatinny performs air modeling. For any new or modified source that emits HAPs, the operations are assessed for their impacts on ambient air quality. To date, the only pollutant showing an impact is lead. The air model assesses both long term (3-month average) and short-term (24-hour average) ambient air impacts. The facility baseline impact determined from the most recent cumulative air quality modeling shows no impact on the current National Ambient Air Quality Standard (long term standard) and anything that emits lead will have an impact on the short term state guideline concentration. EPA has promulgated a new NAAQS for lead which is one-tenth the current standard. Further analyses will be necessary to determine health risk when the new regulations take effect in New Jersey.

4.4.2 Reasonably Foreseeable Future Actions.

Reasonably foreseeable future actions are mainly limited to those that have been approved and that can be identified and defined with respect to timeframe and location. Reasonably foreseeable future actions that have been identified and considered in the analysis of cumulative impacts are listed below. Reasonably foreseeable on-post actions include the following:

- Continuation of present operations being performed by the garrison and installation's tenants. It is anticipated that current military missions at Picatinny are expected to remain relatively constant into

the foreseeable future. Maintenance, repair, and operation of existing operational support facilities would continue as currently conducted, and these operations would expand to address those facilities built within the scope of the Picatinny RPMP.

- Projects identified under the LRC, and future EUL projects are reasonably foreseeable.
- The real property, land use, and land development requirements that are scheduled for Picatinny's long range program due to funding constraints or lower priority as established by the Garrison and Mission leadership can be found in the LRC of the RPMP. These long range projects are not analyzed in the cumulative impacts section because NEPA analysis normally considers only a maximum five to seven-year time window. Reasonably foreseeable on-post actions have been limited to those that can be identified and defined with respect to time frame and location.
- Redevelopment of many of the installation's family housing units as part of the Army's Residential Communities Initiative would result in renovation, redevelopment and construction activities within and near the installation's housing area. These actions have been reviewed by a separate environmental review.
- Picatinny is participating in a EUL initiative that would result in the leasing and development of an approximately 120-acre site (Picatinny's Applied Research Campus) adjacent to Parker Road near the main gate.
- Picatinny is anticipated to receive an increase in mission activities because of BRAC 2005 realignment actions. A separate stand alone environmental review of this potential action is being prepared and is addressed here as well.
- It is anticipated Morris County population will continue to grow. Between 1980 and 2000, the county's population increased by 15.4 percent (New Jersey Department of Labor and Workforce Development 2006a). Between 2000 and 2007 the county's population increased by an estimated 3.9 percent. The estimated 2007 population for Morris County is 488,475 (Census Bureau, 2008).

4.4.3 Potential Cumulative Effects

4.4.3.1 Alternative 1-No Action Alternative

Under the No-Action Alternative, current operations would continue at their current pace. Projects identified in the Real Property Master Plan would not be implemented. Accordingly, those projects identified in Section 4.3.1 that would affect wetlands transitional areas would not be implemented. Land use changes would not be implemented, and housing units near some of the installation's industrial operations would remain. This would have a negative effect on land use on Picatinny Arsenal. The No-Action alternative would not affect the installation's historic or cultural resources. Continued population growth in Morris County and Northern New Jersey would likely increase traffic on roadways near the installation, specifically Interstate 80 and Route 15. The increase in vehicle operations would likely have a detrimental effect on regional air quality. Future development of the proposed 100-acre tract for development under the EUL would require its own detailed environmental analysis.

4.4.3.2 Alternative 2. Implementation of the Short Range Component and the Enhanced Use Lease.

The SRC ensures that repair, maintenance, and construction projects have been thoroughly evaluated and coordinated prior to funding. The list of projects included in the SRC is provided in Table 2.1. The short range component will include construction actions to support the BRAC, increase in operations of open detonation, the redevelopment of the 100,000 square feet (sf) of existing facilities in the building 350-area, and the 20-acre development associated with the EUL initiative. The 20-acre development near the installation's front gate will be implemented based on market conditions.

The 20-acre EUL that is proposed for development near the installation's main gate, adjacent to Parker Road, would require moving the two ball fields and would likely affect both wetlands and transition areas

in that 20-acre tract. A permit issued New Jersey Department of Environmental Protection (NJDEP) would be required before construction could begin in the 20-acre tract near the main gate.

Continued population growth in Morris County and Northern New Jersey would likely increase traffic on roadways near the installation, specifically Interstate 80 and Route 15, and may affect level of service on roadways leading to Picatinny.

Implementing the SRC and EUL will have no effect on land use of adjoining non-DoD properties.

If cultural resources surveys and/or historic building assessments have not yet been completed on potential development sites, Picatinny would commit to completing the needed regulatory compliance requirements prior to development with guidance from the CRC and in consultation with the SHPO. All guidelines outlined in the ICRMP would be followed including consultation, in accordance with Section 106 of the NHPA, with the SHPO standard operating procedures in the event of an unanticipated discovery during construction.

Implementing the SRC is anticipated to have minimal short-term adverse impacts to air quality based on the additional construction activities. Increases in the Morris County population, and associated vehicle traffic will have an overall negligible effect on air quality in the area. Since Picatinny is currently having a short-term (24-hour average) impact, any future operations that emit lead will further impact air quality. Ambient air quality impacts of lead emissions from current Picatinny operations are below current National Ambient Air Quality Standard (3-month average).

Implementing the SRC will have negligible effect level of service of traffic on the installation or on adjoining roadways, and Route 15 in particular. The traffic study conducted in 2007 (SHA, 2007) determined that expected increase in traffic volume from building 150,000 sf of research and administrative facilities could largely be mitigated by adjusting the timing in the traffic signals on Route 15. It is unsure if this mitigation would suitably address the potential increase in traffic volume with the continued population growth of Morris County. Further studies, conducted by the New Jersey Department of Transportation, would likely be required to determine how Route 15 can suitably accommodate traffic volume that would accompany population increases in Morris County. Overall, there would be some minor and negligible cumulative effects associated with implementing the SRC and EUL at Picatinny. However, the potential effects would not be significant.

4.4.3.3 Alternative 3. Implement the Picatinny Arsenal Real Property Master Plan, All Component Plans, and the Enhanced Use Lease (EUL)

The LRC identifies wetlands and associated transition zones as a constraint on the installation's planning and construction program. To the maximum extent possible, projects in the LRC are located outside of wetlands and their associated transition zones. Unavoidable construction that may occur on or adjacent to a wetland will require written authorization from the NJDEP. The installation will implement mitigations required by NJDEP.

In addition to the impacts from this alternative identified in Alternative 2, renovation and construction activities could require air preconstruction permits. Based on expected energy use increases and permit limits associated with emissions from such sources, a negligible long-term cumulative impact is anticipated. Since Picatinny is currently having a short-term (24-hour average) impact, any future operations that emit lead will further impact air quality. Ambient air quality impacts of lead emissions from current Picatinny operations are below the current National Ambient Air Quality Standard (3-month average).

In compliance with the installation ICRMP, cultural resource surveys would be conducted in potential construction areas where no previous surveys have been conducted. Implementing the RPMP, and all component plans would have a minimal impact on Picatinny Arsenal's known cultural resources. Continued population growth and urban development may extend to the lands near or adjoining the installation, which could affect the installation's research mission.

The population, and accordingly traffic, in Morris County will continue to grow. That population and the resultant traffic would be distributed throughout the county. Its effect on level of service on Route 15 cannot be measured. The traffic study (CHA, 2007) indicated that implementation of the SRC, BRAC and the 20-acre EUL would affect level of service on Route 15, and those effects could largely be mitigated by adjusting the timing of the traffic signals. Implementation of the 20-acre EUL is tentative until market forces dictate the demand for the investment. The projects listed in the LRC are largely focused on enhancing, rather than expanding, the installation's current mission. Little, if any, permanent increase in the installation's workforce population would result upon completion of the LRC projects, resulting in a minimal increase in traffic volume. The third phase of the EUL, on the 100-acre tract, would be implemented when market forces dictate. This action would require its own environmental analysis under the auspices of NEPA. Implementation of the LRC will likely be some increase in traffic volume both on Picatinny Arsenal and on adjoining roads in Morris County, but the increase, and effect of that increase will not be significant.

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SECTION 5

SUMMARY AND CONCLUSIONS

The purpose of the proposed action is to implement the Picatinny Arsenal RPMP, which provides a long-range strategy to use its real property assets effectively to support the installation's mission. Master planning for military installations is a continuous analytical process, which embraces changes in existing conditions, technological advancements, and organizational modifications. It involves evaluation of factors affecting the current and future physical development of Picatinny. Each step or element of the planning process is directed toward creating a series of interrelated documents that together comprise an installation master plan. Those interrelated documents include the Short Range Component (SRC), Capitol Investment Strategy (CIS) and Long Range Component (LRC). Table 5.1 provides a summary of the potential effects of implementing each of the alternative courses of action.

While the No Action Alternative would have no effect on the human or natural environment at Picatinny, it would prohibit the installation from developing and implementing a long-range strategy to use its real property assets effectively to support the installation's mission. This alternative would prevent the installation from relocating several family housing units that are near some of Picatinny's industrial operations, and prevent the orderly and effective use of real property to support the growing mission at Picatinny Arsenal.

It was determined that a number of valued environmental components would not be affected by the implementing either Alternative 2 or Alternative 3. Those valued environmental components include:

- Airspace
- Energy
- Noise
- Threatened & Endangered Species
- Socioeconomics
- Environmental Justice
- Soil Contamination
- Erosion
- Floodplains
- Natural Resources
- Infrastructure
- Water Resources

Alternative 2 involves implementing only the SRC, Phase II of the EUL, and changes to OB/OD operations. This alternative will likely have moderate impacts on wetlands, traffic and transportation, air quality and hazardous waste and hazardous materials. Several projects in the SRC could involve minor incursions (total of 1.83 acres; see Table 4.3) into wetlands transition areas which will require a permit issued by the NJDEP, unless final facility siting is modified. The installation's road network can accommodate the projected increase in traffic volume. Adjacent off-post roadways, particularly Route 15, will be further stressed, but the effect may largely be mitigated by adjusting the timing of traffic signals.

There is no projected affects on cultural resources, providing the installation conducts the necessary cultural resource surveys before construction begins. Implementing the SRC would be done within the established land uses defined in the RPMP, and would have no detrimental affect on land adjoining the installation. The SRC does not include relocating several family housing units that are adjacent to some of the installation's industrial operations. Implementing the SRC involves construction on lands that have

not been surveyed for historical or cultural resources. To avoid damaging potential historical/cultural resources, the installation should ensure appropriate surveys are conducted on proposed construction sites for SRC projects.

Phase II of the EUL is a proposed 150,000 sf research and administrative facility to be located near the installation's main gate, and will be implemented at a point in the future when market forces dictate the demand for the facility. This project may affect some wetlands and wetlands transition areas. Potential incursions into a wetland or wetland transition area will require a permit issued by the NJDEP. Changing the installation's open burning operations to a location further from the installation boundary, and reducing the annual burning from approximately 25,000 lb to 5,000 lb will likely have a positive effect on local air quality. This action could occur upon the NJDEP granting authority for Picatinny to operate its Explosive Waste Incinerator. The Army Research Development and Engineering Command has requested authority to increase the annual limit on open detonation (OD) operations from 5,000 lbs to 10,000 lbs. The OD site is currently contaminated with the residue from many years of open detonation activities. The proposed increase of OD operations is subject to the approval of the NJDEP.

Alternative 3 involves implementing the installation's Real Property Master Plan to include all component plans (SRC, CIS and LRC), and be prepared to implement Phase II and Phase III of the EUL based on market demand, and expand operations of open burning and open detonations of excess propellants, explosives, and pyrotechnics associated with the installation's research mission.

The potential effects of this alternative are much the same as Alternative 2. Implementing the RPMP and component plans will have no effect on land use of non-government properties outside the installation's border. Implementing the LRC would have a positive effect on land use on the installation by supporting the relocation of several housing units currently located adjacent to some of the installation's industrial operations. Projects will be sited to avoid or minimize potential affects on wetlands. Any project that affects a wetlands or transition area will require a permit from the NJDEP before construction can begin. Preliminary review of the cultural resource data in the installation's GIS system indicates several projects may be on or adjacent to cultural resources. To avoid damaging those resources, the installation should conduct archaeological surveys of the proposed sites, and adjust project siting accordingly and initiate consultation with the SHPO. Upon approval by NJDEP to operate the installation's Explosive Waste Incinerator, a reduced amount of waste/excess propellant and explosives will be destroyed at the open burning ground. Operational emissions from lead emitting sources are affecting the ambient air concentration for lead. See the cumulative impacts section. Reduction of the quantities of waste energetics burned in the open burning ground will have a positive effect on air quality. This alternative includes implementing Phase III of the EUL. Phase III of the EUL would be built after Phase II, and when market forces dictate the requirement. Due to the size (approximately 100 acres), and uncertain nature of the exact requirements of this action, a separate environmental analysis under NEPA would be conducted before this action is implemented. An anticipated increase in installation workforce population is not expected to cause undue traffic delays on the installation. A traffic study conducted in 2007 (CHA, 2007) determined that modification of the timing of traffic signals on Route 15 near the installation would mitigate the effects of increased traffic volume during morning and evening peak hours. This mitigation would also address the projected increase in traffic volume from sources other than the Arsenal.

Table 5.1 Alternative Analysis Matrix			
Valued Environmental Component	Alternative 1	Alternative 2	Alternative 3
Airspace	○	○	○
Energy	○	○	○
Noise	○	○	○
Threatened & Endangered Species	○	○	○
Socioeconomics	○	○	○
Environmental Justice	○	○	○
Soil Contamination	○	○	○
Erosion	○	○	○
Floodplains	○	○	○
Hazardous Material & Hazardous Waste	○	⊘	⊘
Natural Resources	○	○	○
Infrastructure	○	○	○
Water Resources	○	○	○
Wetlands	○	⊘	⊘
Land Use	⊘	⊘	+
Cultural Resources	○	⊘	⊘
Air Quality	○	⊘	⊘
Traffic and Transportation	○	⊘	⊘
Symbol Key: Significant Impact ⊗ Beneficial impact + Moderate Impact ⊘ Not Applicable N/A Minor or no Impact ○			

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SECTION 6

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SECTION 8

ABBREVIATIONS AND ACRONYMS

Acronyms used in this PEA include the following:

1-10

1,2 DC	Dichloroethene
2,4 DNT	2,4 Dinitrotoluene (chemical compound for a military explosive)

A

AAQS	ambient air quality standards. In this document refers to both National Ambient Air Quality Standards (NAAQS) and New Jersey Ambient Air Quality Standards (NJAAQS).
ACM	asbestos-containing materials
ACSIM	Assistant Chief of Staff for Installation Management
AR	Army Regulation
ARAR	Applicable or Relevant and Appropriate Requirements
ARDEC	Armament Research, Development, & Engineering Center
ARPA	Archaeological Resources Protection Act
ASIP	Army Stationing and Installation Plan

B

BAH	Basic Allowance for Housing
BASOPS	Base Operations Service
BMP	Best Management Practices
BRAC	Base Realignment and Closure

C

C&D	construction & demolition
CDMP	Community Development Master Plan
CEA	Classified Exemption Area
CEQ	President's Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CFR	Code of Federal Regulations
cfs	cubic feet per second
CHA	Clough, Harbour and Associates
CIS	Capital Investment Strategy
CNC	Computer Numerically Controlled
CO	carbon monoxide

Contributing	A building/facility which is of the same historic time period of the district (see also noncontributing)
CRADA	Cooperative Research and Development Agreement
CRC	Cultural Resources Coordinator
CX	Categorical Exclusion

D

DA	Department of the Army
DBC	C-weighted average day-night decibel levels
DBH	diameter at breast height
DCAA	Defense Contract Audit Agency
DCMA	Defense Contract Management Agency
demil	demilitarization
DERP	Defense Environmental Restoration Program
DMM	discarded military munitions
DoD	Department of Defense
DPW	Directorate of Public Works
DSERTS	Defense Site Environmental Restoration Tracking System

E

EA	Environmental Assessment
EAD	Environmental Affairs Division
EIFS	Economic Impact Forecast System
EIS	Environmental Impact Statement
EO	Executive Order
EOD	Explosive Ordnance Disposal
EP	effective population
EPCRA	Emergency Planning and Community Right-to-Know Act
EPA	Environmental Protection Agency
ESA	Endangered Species Act
ESMP	Endangered Species Management Plan
EUL	Enhanced Use Lease
EWI	explosives waste incinerator

F

°F	Fahrenheit
FCG	Facility Category Group
FIRE	Finance, Insurance, and Real Estate
FMS	field maintenance shop
FNSI	Finding No Significant Impact
FW	means the general surface water classification applied to fresh waters
FW1	means those fresh waters, as designated in N.J.A.C. 7:9B-1.15(h) Table 6, that are to be maintained in their natural state of quality (set aside for posterity) and not subjected to any man-made wastewater discharges or increases in runoff from anthropogenic activities. These waters are set aside for posterity because of their clarity, color, scenic setting, and other characteristic of aesthetic value, unique ecological significance, exceptional recreational significance, exceptional water supply significance, or exceptional fisheries resource.

FW2-NT	Freshwater 2-Non-Trout
FW2-TM	Freshwater 2-Trout Maintenance
FW2-TP	Freshwater 2-Trout (C1) Producing, Category 1
FY	fiscal year

G

g	Gravities
GCS	Ground Combat Systems
GIS	Geographic Information System
GPB	Green Pond Brook

H

HAP	hazardous air pollutant
HAZMART	hazardous materials pharmacy
HMx	abbreviation for cyclotetramethylene-tetranitramine, a powerful and relatively insensitive high explosive
HSMS	Hazardous Substance Management System
HUC	hydrologic unit code

I

IC	institutional control
ICRMP	Integrated Cultural Resource Management Plan
IDG	Installation Design Guide
IMCOM	US Army Installation Management Command
INRMP	Integrated Natural Resource Management Plan
IPMP	Integrated Pest Management Plan
IRP	Installation Restoration Program
ISR	Installation Status Report
ISWMP	Integrated Solid Waste Management Plan

J

JFK	John F. Kennedy International Airport
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L

LBP	lead-based paint
LCMC	Life-cycle Management Command
LEED	Leadership in Energy and Environmental Design
lf	linear feet
LOC	level of concern
LOS	level-of-service
LRC	Long Range Component
LUC	land use control

M

M1, M6	Types single-base propellants
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MBTA	Migratory Bird Treaty Act
MC	munitions constituents
MCA	Military Construction Army
MCMUA	Morris County Municipal Utilities Authority
mg/L	milligrams per liter
mgd	million gallons per day
MILCON	military construction
mm	millimeter
MMRP	Military Munitions Response Program
MOA	Memorandum of Agreement
MTBE	methyl tertiary butyl ether

N

NAAQS	National Ambient Air Quality Standards
NARTS	Naval Air Rocket Test Station
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NRHP	National Register of Historic Places
NIPS	non-native invasive plant species
NJAAQS	New Jersey Ambient Air Quality Standards
N.J.A.C.	New Jersey Annotated Code
NJDEP	New Jersey Department of Environmental Protection
NJDFW	New Jersey Department of Fish and Wildlife
NJDOT	New Jersey Department of Transportation
N.J.S.A.	New Jersey Statutes Annotated
NJTPA	New Jersey Transportation Planning Authority
Non-contributing	A building or facility built after the time of historical significance located in an historic district.
NO _x	nitrogen oxides
NOI	Notice of Intent
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NWI	National Wetlands Inventory

O

OD	open detonation
OSHA	Occupational Safety and Health Administration

P

P2	pollution prevention
PA	Programmatic Agreement
PARC	Picatinny Applied Research Campus
PA/SI	Preliminary Assessment/Site Investigation
Pb	lead
PCB	polychlorinated biphenyls
PCE	tetrachloroethylene
pCi/L	picocuries per liter

PEA	Programmatic Environmental Assessment
PEO	Program Executive Officer
PEO Ammo	Program Executive Officer for Ammunition
PEO GCS	Program Executive Officer Ground Combat Systems
PEP	propellant, explosive, and pyrotechnic materials
PGR	Picatinny Garrison Regulation
PM	Program Manager
PM ₁₀	particulate matter, larger than 10 um
PMC	Pest Management Coordinator
PM CSW	Product Manager Crew Served Weapons
PM IW	Product Manager Individual Weapons
PM SW	Project Manager Soldier Weapons
PMSA	Primary Metropolitan Statistical Area
POM	Program Objective Memorandum
PPA	Pollution Prevention Act
ppb	parts per billion

R

RCI	Residential Communities Initiative
RCRA	Resource Conservation and Recovery Act
RDECOM	U.S. Army Research, Development and Engineering Command
RD/RA	Remedial Design/Remedial Action
RDX	cyclotrimethylenetrinitramine
REC	Record of Environmental Consideration
RI	remedial investigation
RI/FS	remedial investigation/feasibility study
ROD	Record of Decision
ROI	Region of Influence
RONA	Record of Non-applicability
RPI	Real Property Inventory
RPM	reasonable and prudent measures
RPMP	Real Property Master Plan
RTV	rational threshold value
RVRSA	Rockaway Valley Regional Sewage Authority

S

SAMAS	Structure and Manpower Allocation System
sf	square feet
SHPO	State Historic Preservation Officer
SIP	state implementation plan. State plan to improve air quality reported to USEPA
SO ₂	sulfur dioxide
SPCC/	Spill Prevention Control and
DPCC	Countermeasures / Discharge Prevention Control and Countermeasures
SRC	Short Range Component
SREC	Sussex Rural Electric Cooperative
SWQS	Surface Water Quality Standards
SY	square yard

T

T&E	Threatened and Endangered
TAADS	The Army Authorization Document System
TACOM	U.S. Army Tank-automotive and Armaments Command
TAL	target analyte list
TCE	Trichloroethylene
THPO	Tribal Historic Preservation Officer
TNT	Trinitrotoluene
TRI	Toxics Release Inventory
TSP	total suspended particulate

U

UFC	Unified Facilities Criteria
ug/l	micrograms per liter (equivalent to ppb)
UMMCA	Urgent Minor Military Construction Army
USACE	US Army Corps of Engineers
USACHPPM	US Army Center for Health Promotion and Preventive Medicine
USEPA	US Environmental Protection Agency
USFWS	US Fish and Wildlife Service
UXO	unexploded ordnance

V

VOC	volatile organic compound
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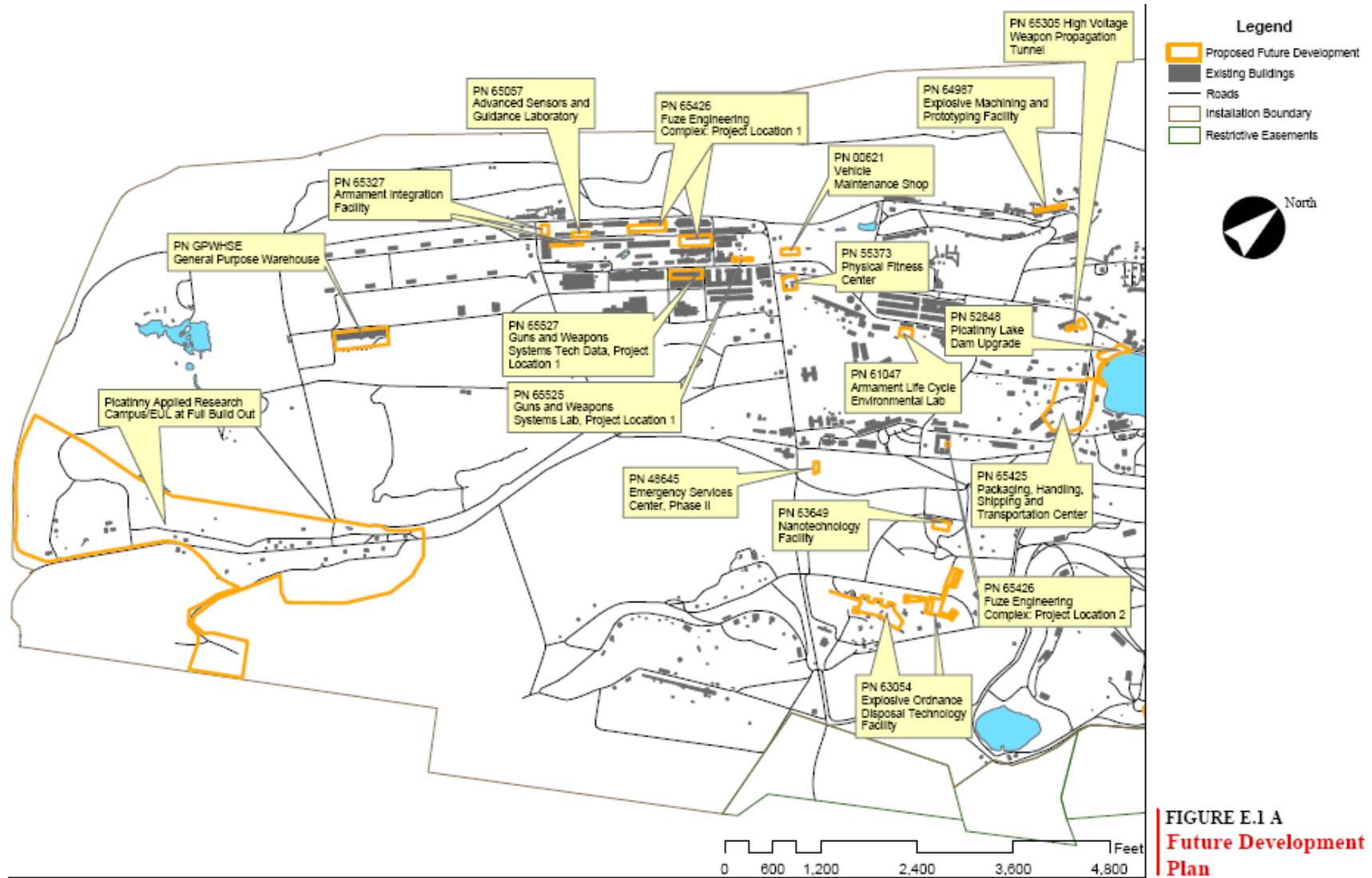
W

WES	Waterways Experiment Station. A laboratory and research facility under the jurisdiction of the US Army Corps of Engineers
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APPENDIX A

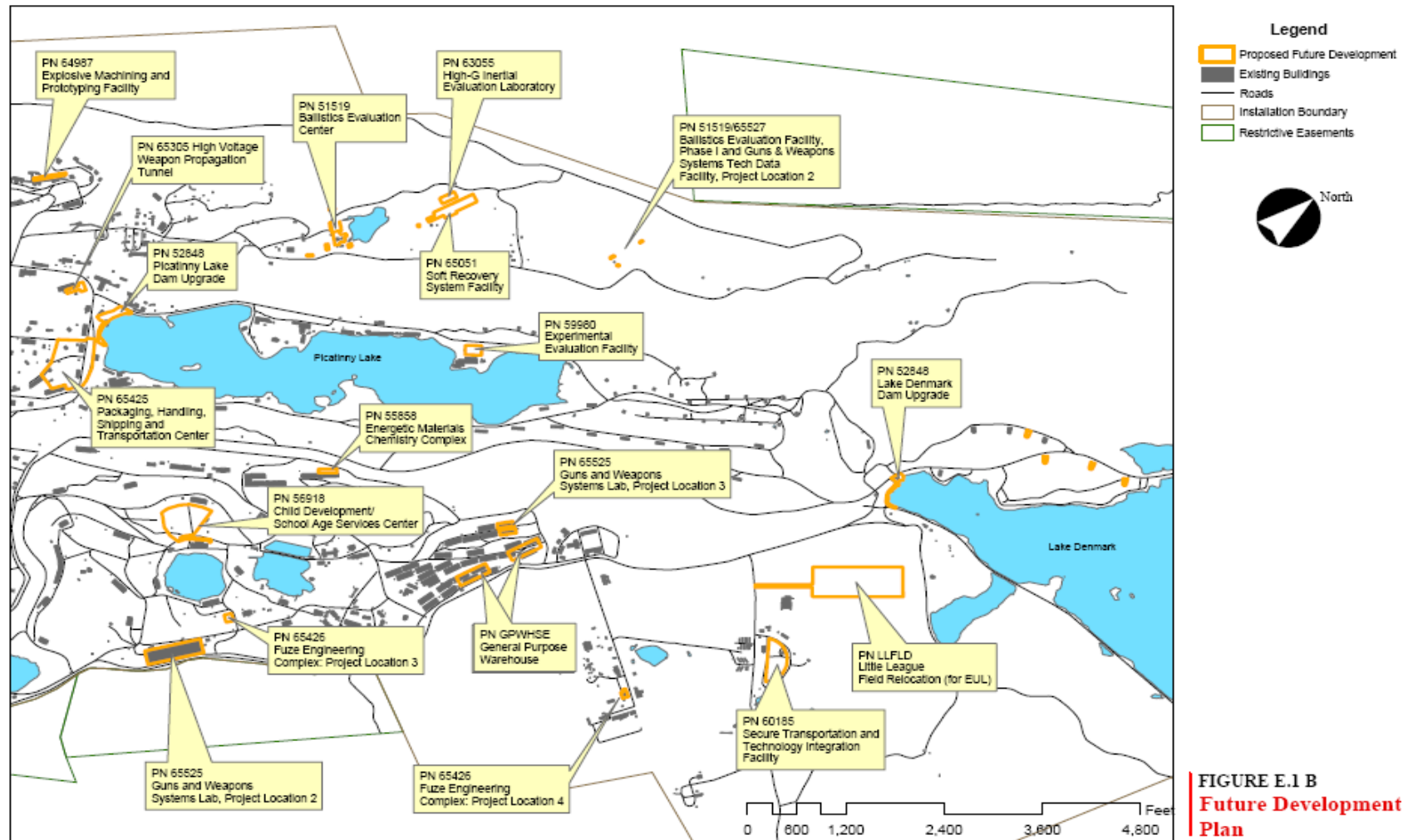
MAPS AND FIGURES

Figure A.1A Picatinny Arsenal Future Development Plan

FIGURE E.1 A
Future Development
Plan

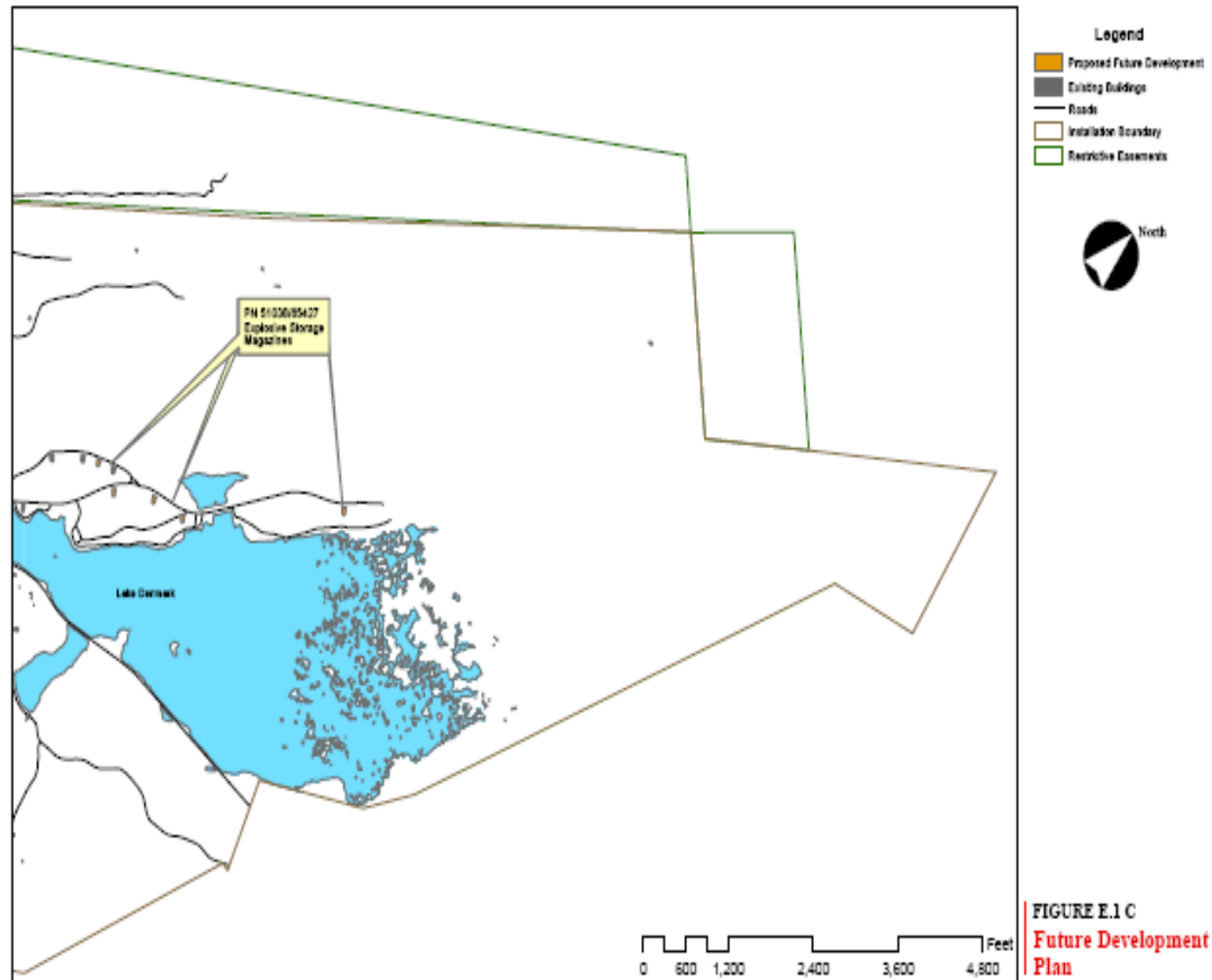
Reference: Picatinny Arsenal Long Range Component Plan, Figure E.1A

Figure A.1B Picatinny Arsenal Future Development Plan



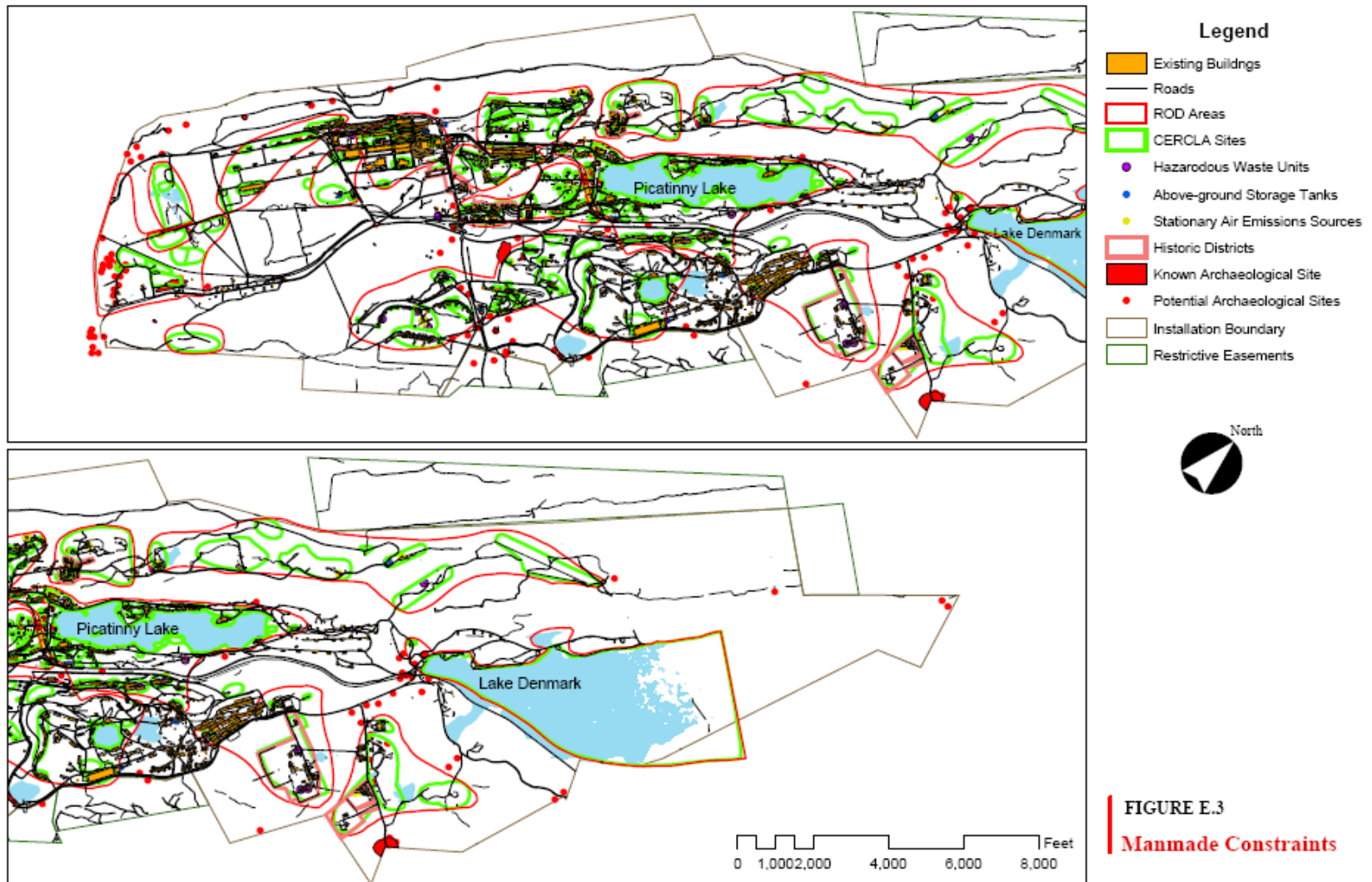
Reference: Picatinny Arsenal Long Range Component Plan, Figure E.1B

Figure A.1C. Picatinny Arsenal Future



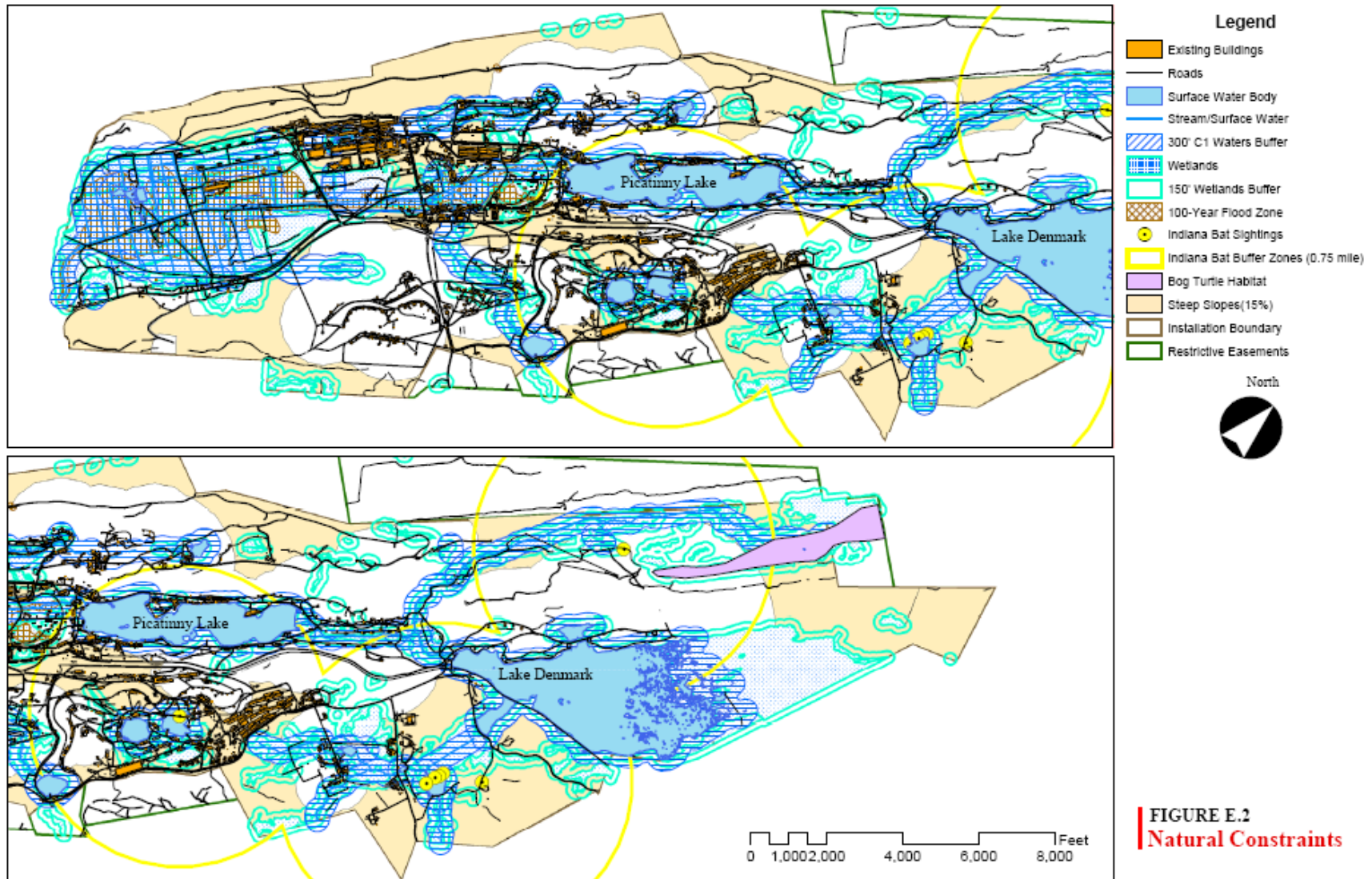
Reference: Picatinny Arsenal Long Range Component Plan, Figure 7.6C

Figure A.2. Manmade Constraints to Development at Picatinny Arsenal



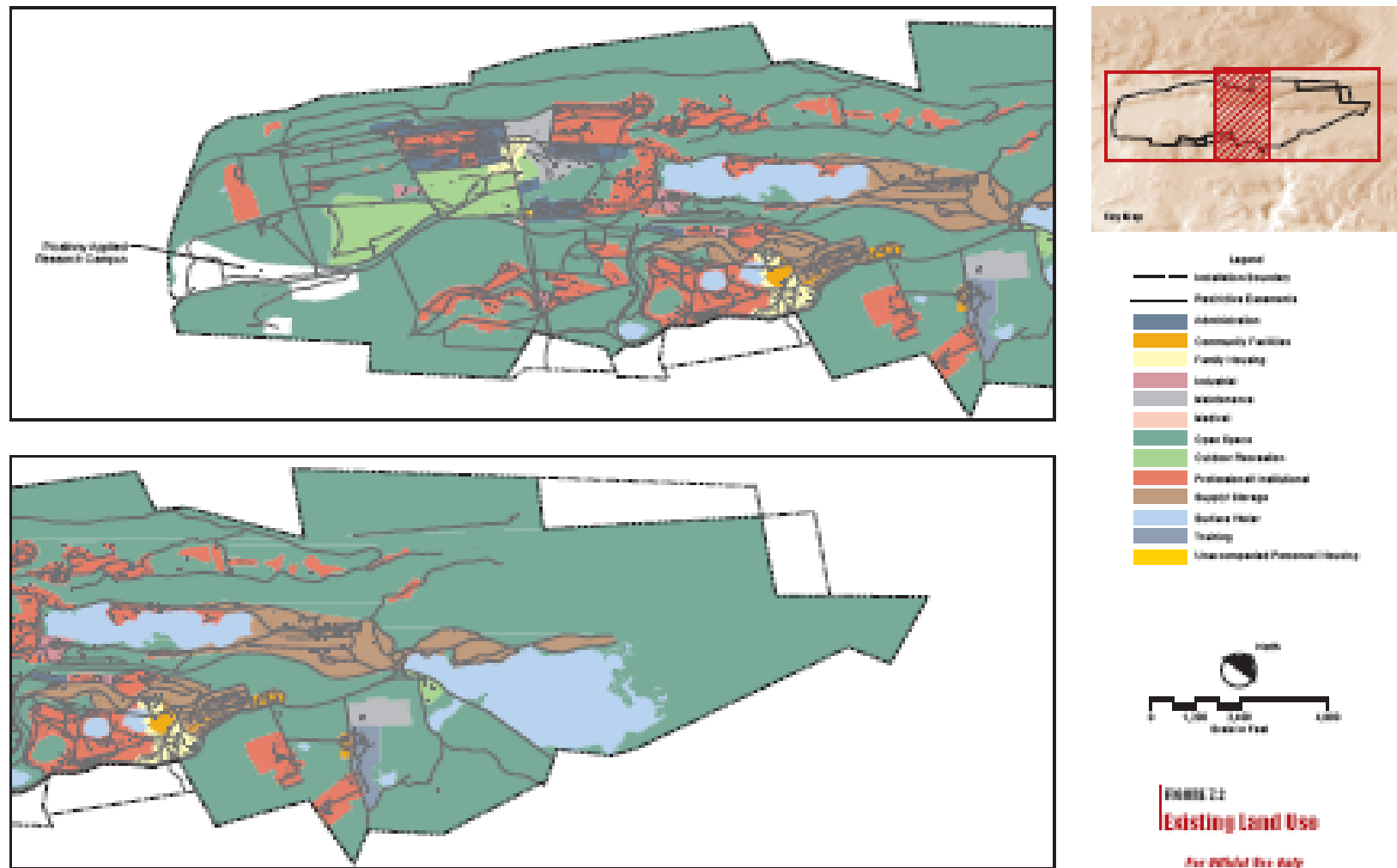
Reference: Picatinny Arsenal Long Range Component Plan, Figure E.3

Figure A.3. Natural Constraints to Development at Picatinny Arsenal



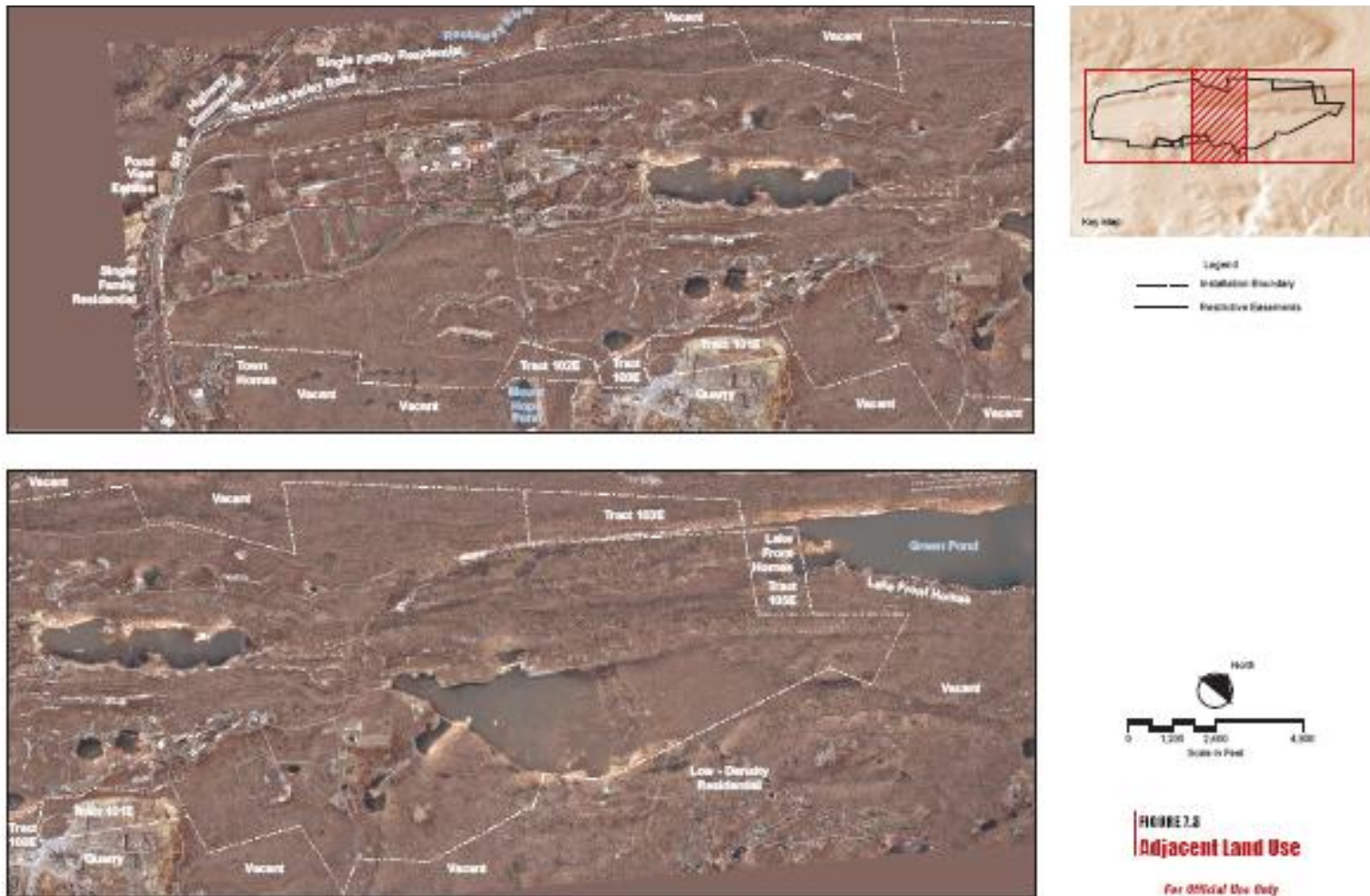
Reference: Picatinny Arsenal Long Range Component Plan, Figure E.2,

Figure A.4. Existing land use categories on Picatinny



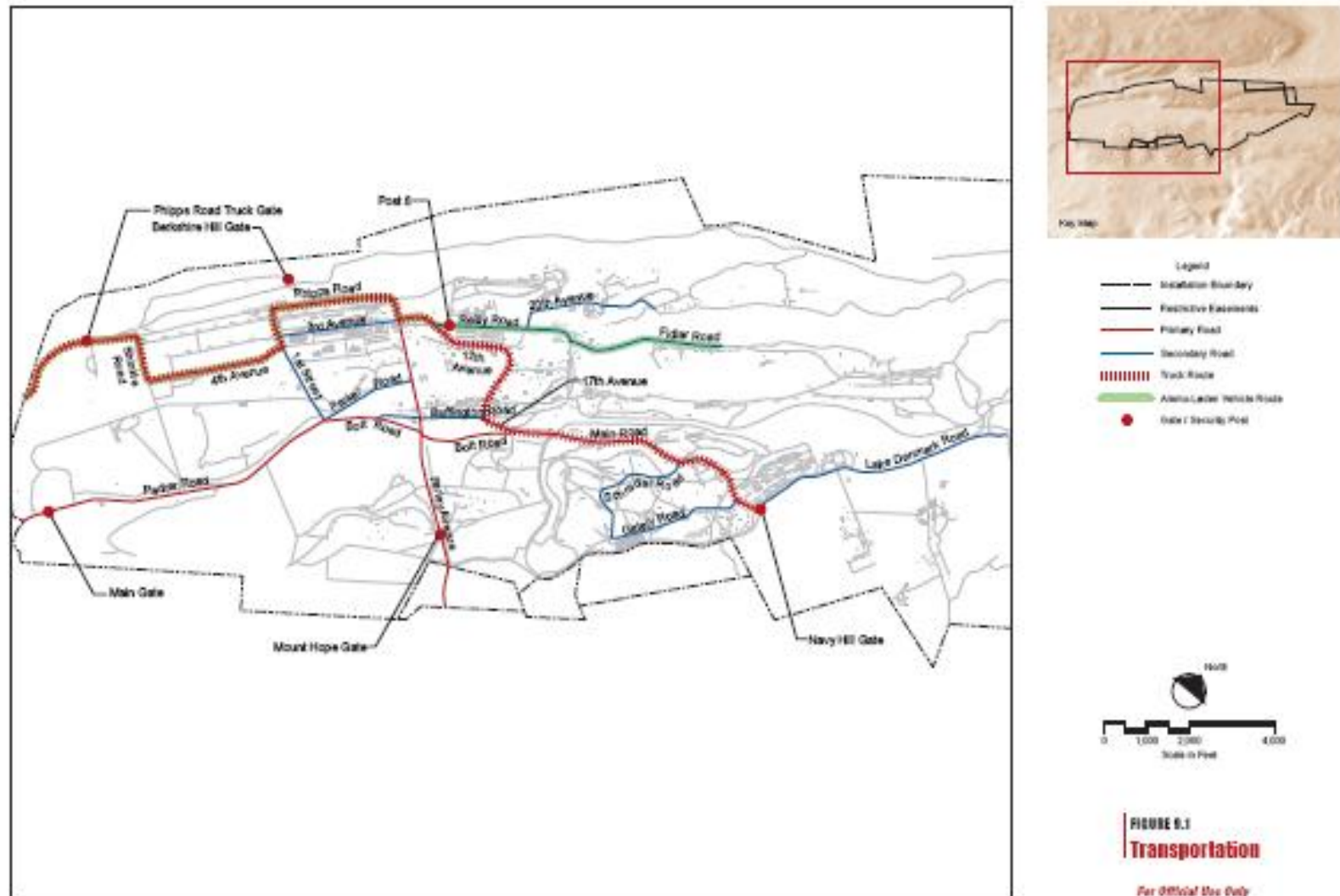
Reference: Picatinny Arsenal Long Range Component, Figure 7.2.

Figure A.5. Land Uses Adjacent to Picatinny Arsenal



Reference: Picatinny Arsenal Long Range Component, Figure 7.3

Figure A.6 Picatinny Arsenal Road Network.



Reference: Picatinny Arsenal Long Range Component Plan. Figure 9.1

APPENDIX B

DATA TABLES

Table B.1: Measured Ambient Concentrations in Vicinity of Arsenal						
Pollutant	Monitor Site	Averaging Period	Year	Measured Concentrations ($\mu\text{g}/\text{m}^3$)	Primary NAAQS / NJAAQS ($\mu\text{g}/\text{m}^3$)	Percent of NAAQS / NJAAQS (%)
SO ₂	Chester	3-hour	1999	138.6	1300 ^(a)	10.7
		24-hour	1999	69.3	365	19.0
		Annual ^(b)	1998-2000	10.7	80	13.3
TSP	Phillipsburg	24-hour	1996	94.0	260	36.2
		Annual ^(b)	1997	40.4	75	53.9
PM ₁₀	Clifton	24-hour	1998	63.0	150	42.0
		Annual ^(c)	1998	25.5	50	51.0
PM _{2.5}	Morristown	24-hour	2000	32.4	65	49.8
		Annual	2000	12.9	15	86.0
NO ₂	Chester	1-hour	1998	130.1	470 ^(d)	27.7
		Annual ^(b)	1998, 1999	23.0	100	23.0
CO	Morristown	1-hour	1998	7,340	40,000	18.4
		8-Hour	1999	4,777	10,000	47.8
Pb	New Brunswick	3-month	1999	0.183	1.5	12.2
O ₃	Chester	1-hour	1999	237.6	235	101.1
Secondary standard. Based on 12-month maximum for comparison to NJAAQS; NAAQS based on calendar year value, which is lower than 12-month maximum. Based on calendar year value for comparison to NAAQS; no comparable NJAAQS. NJDEP 1-hr guideline value; not an ambient standard.						

Table B.2 Short Term and Long Term Criteria Pollutant Emission Estimates							
Project Title	Estimated New Construction Square Footage	Estimated Short/Long Term Emission Estimates: (Tons/Year)					
		NOx		VOC		PM2.5	
Ballistics Evaluation Center	23,684	0.8076	0.3200	0.1627	0.0244	0.0706	0.0240
Explosive Ordnance Disposal Technology Facility	18,155	0.6191	0.3177	0.1247	0.0243	0.0541	0.0235
Soft Recovery System Facility	98,300	3.3520	0.3516	0.6753	0.0259	0.2929	0.0303
RF High Voltage Weapon Propagation Tunnel	51,300	1.7493	0.3317	0.3524	0.0250	0.1529	0.0263
Explosive Machining and Prototyping Facility	12,000	0.4092	0.3151	0.0824	0.0242	0.0358	0.0230
Precision Munitions Instrumentation Facility	20,000	0.6820	0.3185	0.1374	0.0244	0.0596	0.0237
Advanced Munitions and Guidance Laboratory	40,000	1.3640	0.3269	0.2748	0.0248	0.1192	0.0254
High-G Inertial Evaluation Laboratory	16,000	0.5456	0.3168	0.1099	0.0243	0.0477	0.0233
Energetic Materials Chemistry Complex	24,000	0.8184	0.3202	0.1649	0.0245	0.0715	0.0240
Experimental Evaluation Facility	45,900	1.5652	0.3294	0.3153	0.0249	0.1368	0.0259
Nano Technology Facility (Pending)	20,000 (est.)	0.6820	0.3185	0.1374	0.0244	0.0596	0.0237
Armament Life Cycle Environmental Laboratory	17,000	0.5797	0.3172	0.1168	0.0243	0.0507	0.0234
Virtual-to-Reality Center (Pending)	20,000 (est.)	0.6820	0.3185	0.1374	0.0244	0.0596	0.0237
Secure Transportation and Technology Integration Facility (Pending)	16,000	0.5456	0.3168	0.1099	0.0243	0.0477	0.0233
Emergency Services Center Phase II	10,000	0.3410	0.3142	0.0687	0.0242	0.0298	0.0228
Vehicle Maintenance Facility	20,000	0.6820	0.3185	0.1374	0.0244	0.0596	0.0237
Child Development Center	10,000 (est.)	0.3410	0.3142	0.0687	0.0242	0.0298	0.0228
Physical Fitness Center	27,771	0.9470	0.3218	0.1908	0.0245	0.0828	0.0243
Child Development/School Age Services Center	27,175	0.9267	0.3215	0.1867	0.0245	0.0810	0.0243
Dam Upgrades (in Design)		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Post Chapel (Pending)	30,000	1.0230	0.3227	0.2061	0.0246	0.0894	0.0245
Roof Replacement Arsenal-wide (Pending)	600,000	0.0500	0.0000	0.0100	0.0000	0.0100	0.0000
Fence Replacement Arsenal-wide (Pending)	191,000 LF	0.0500	0.0000	0.0100	0.0000	0.0100	0.0000
Road Repair Arsenal-wide (Pending)	777,000 SY	0.3700	0.0000	0.1000	0.0000	0.0400	0.0000
Packaging, Handling, Storage and Transportation Center (BRAC)	49,350	1.6828	0.8509	0.3390	0.5449	0.1471	0.0401
Fuze Engineering Complex (BRAC)	31,140	1.0619	0.8432	0.2139	0.5446	0.0928	0.0386
Explosive Storage Magazines (BRAC)	21,600	0.7366	0.8391	0.1484	0.5444	0.0644	0.0378
Guns and Weapons Systems Laboratory (BRAC)	23,190	0.7908	0.8398	0.1593	0.5444	0.0691	0.0379
Guns and Weapons Systems Technology Data Facility (BRAC)	116,501	3.9727	0.8793	0.8004	0.5462	0.3472	0.0458
Enhanced Use Lease (EUL)	1,000,000	34.1000	1.2535	2.9800	0.5200	0.0429	0.1061
Total		60.6864	11.5711	5.2430	11.7032	3.6945	0.7766

Table B.3: Real Property Master Plan Project Priorities

<i>Priority</i>	<i>Program</i>	<i>Project Number</i>	<i>Project Title</i>	<i>Cost (\$millions)</i>	<i>FCG</i>
Mission Priorities					
1	MCA	51519	Ballistics Evaluation Center	21.0	F31800
2	MCA	63054	Explosive Ordnance Disposal Technology Facility	18.0	F31600
3	MCA	65051	Soft Recovery System Facility	25.0	F31800
4	MCA	65305	RF High Voltage Weapon Propagation Tunnel	10.4	F31800
5	MCA	64987	Explosive Machining and Prototyping Facility	9.2	F31600
6	MCA	65055	Precision Munitions Instrumentation Facility	16.0	F31700
7	MCA	65057	Advanced Munitions and Guidance Laboratory	29.0	F31900
8	MCA	63055	High-G Inertial Evaluation Laboratory	15.5	F31900
9	MCA	55858	Energetic Materials Chemistry Complex	14.2	F31000
10	MCA	59980	Experimental Evaluation Facility	23.0	F31000
11	MCA	63649	Nano Technology Facility (Pending)	11.2	F31000
12	MCA	61047	Armament Life Cycle Environmental Laboratory	17.0	F31000
13	MCA	64988	Virtual-to-Reality Center (Pending)	15.5	F31900
14	MCA	60185	Secure Transportation and Technology Integration Facility (Pending)	14.6	F17995
15	EUL	N/A	Enhanced Use Leasing	---	N/A
Garrison Priorities					
1	MCA	48645	Emergency Services Center Phase II	6.9	F73010
2	MCA	00621	Vehicle Maintenance Facility	7.1	F21885
3	MCA	55524	Child Development Center	1.1	F74014
4	MCA	55373	Physical Fitness Center	8.5	F74028
5	MCA	56918	Child Development/School Age Services Center	7.8	F74041
6	MCA	52848	Dam Upgrades (in Design)	1.5	F89270
7	MCA	50000	Post Chapel (Pending)	5.8	F73017
8	MCA	54991	Roof Replacement Arsenal-wide (Pending)	14.0	F32110
9	MCA	55740	Fence Replacement Arsenal-wide (Pending)	7.5	F87210
10	MCA	55068	Road Repair Arsenal-wide (Pending)	7.5	F85110
BRAC Priorities					
1	BRAC	65425	Packaging, Handling, Storage and Transportation Center	40.0	F31500
2	BRAC	65426	Fuze Engineering Complex	24.0	F31600
3	BRAC	65525	Guns and Weapons Systems Laboratory	47.0	F31500
4	BRAC	65527	Guns and Weapons Systems Technology Data Facility	7.9	F31500

Note: Capital investment strategies for projects shown as "Pending" have not yet been prepared by DPW.

Source: Directorate of Public Works, 2006.